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THE PANAMA CANAL
REVIEW
MAY 1970

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PANAMA CANAL REVIEW

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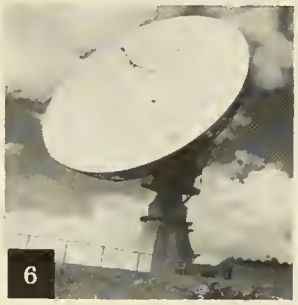


Our Covers

THE tranquil and somewhat Grecian scene on our front cover is at the home of Mr. and Mrs. Henry A. Tooke of Los Rios. Both covers feature orchids. On the front is the *Cattleya skinneri*, a wild plant native to Central and South America. The national flower of Panama, the *Peristeria elata*, commonly known as the Holy Ghost or dove orchid, graces the back cover.

Tooke is one of the many avid orchid growers in the Canal Zone and presently has a collection of approximately 2,000 wild and hybrid orchids.

The *Cattleya skinneri* grows from the lowlands of Panama up to approximately 2,000 feet. The best ones are found in the western part of the Republic. The flower blooms in the fall. Although the *skinneri* is sometimes found near populated areas, says Tooke, for some unknown reason, these urban plants rarely produce a flower.

A migrating moth, the *Cydimon fulgens*, comes to rest on the Holy Ghost orchid. The shape of the flower calls to mind a dove which hovers over an altar formed by the lip. This fragrant orchid blooms from July to September and can be found at low to medium elevations in shaded areas. Commercial collecting has made this plant increasingly scarce except in inaccessible sections of the Interior of Panama.

Photographs by Arthur L. Pollack, front cover, and Melvin D. Kennedy, Jr., back cover.

"ROSE IS a rose is a rose is a rose," said Gertrude Stein, noted author and poet. And that was fine, for a rose does look like a rose no matter what the size, shape or color.

If Gertrude had said this about orchids, she would have been in trouble. Under no given set of circumstances can an orchid be an orchid be an orchid be an orchid.

In the first place, orchids represent the world's largest family of flowering plants. At present there are more than 30,000 different species and the number is increasing as new hybrids are developed.

In the second place, in spite of the general popularity of orchids, few persons can give a fairly accurate description of what distinguishes an orchid from other similar or allied plants.

Paul H. Allen, who wrote the book "THE ORCHIDS IN PANAMA," said that in the American tropics, any plant found growing on a tree is called by the natives a "planta parásita" or parasite plant and hence all parasites are automatically presumed to be orchids.

Orchids are air plants, not parasites.

Orchids

By Eunice Richard

They grow well with lots of air, water and plant food but never take sustenance from another plant. The roots do not penetrate the living tissue of the host plant or extract nourishment from it as do true parasites such as dodder and mistletoe.

Other plants such as bromeliads and aroids are frequently found on the trunks and branches of trees along with orchids.

During the dry season, orchid growers sometimes water their collections with a hose using a fine spray twice a day. In the rainy season, spraying may sometimes be skipped; orchids can die by too lavish or too limited watering.

Most tropical orchids are known as epiphytes, a term meaning to "live upon" some supporting body, usually a tree or a rock. But there are other orchids known as terrestrial. These grow in the ground and, in the tropics, are far less numerous than the epiphytic type. Of the terrestrial orchids there are two classes—those with green leaves and stems which behave like most other plants, and those which are saprophytic or living wholly upon decaying plant

(Please see p. 4)

Orchids do not require elaborate arrangements to bring out their beauty as the above photo shows. A single spray of the scorpion orchid produces a graceful display. A simple black teapot below is used by Mrs. Mary Linden to create an interesting vanda arrangement. A hint of of the Orient comes through in the display at right by Mrs. R. Arosemena.

(Continued from p. 3)

matter. Epiphytic orchids are sometimes apparently terrestrial growing upon the ground in beds of moss and other plants. In temperate regions almost all orchids are terrestrial.

Well Guarded Secrets

The preface of a book on orchids by Walter Richter, a German orchidologist, says orchidology is a cult and its secrets are well guarded by its "high priests." He said their very name summons up visions of strange lands and high adventure, and only those persons who are prepared for a life of rigorous sacrifice can hope to enter its orders.

Whenever the uninitiated is confronted with literature dealing with orchids, he is soon lost in a labyrinth of scientific and Latin terms. It has been said that man either understands orchids or he does not, and he who was not born with the sixth sense required for caring for these extraordinary flowers will never acquire it.

That may be so, but the orchid lovers living on the lush Isthmus of Panama have not been cowed by the apparent pitfalls of orchid growing.

The local aficionados have gone blithly ahead and acquired some collections that would be famous anywhere in the world. Approximately 300 orchid species may be found growing wild in Panama and many of them are in local orchid collections. Many others that have been introduced into this region are now grown by orchidologists on the Isthmus.

Spanish Voyage

Orchid collecting in Panama is not new. One of the first botanical collectors on record to visit Central America and Panama was Luis Nee, botanist of the celebrated Spanish voyage around the world under navigator Malaspine from 1789 to 1794. Nee visited Panama and is known to have collected plants on Ancon Hill. Several of the most common tropical plants were first described from specimens obtained by him there.

During the early days of the Canal construction, workers arriving in Panama from the United States scarcely could fail to take notice of the more conspicuous plants such as the orchids.

Some of the early orchid collectors were Mrs. D. D. Gaillard, wife of the division engineer in charge of the Central District; Mrs. H. H. Rousseau, wife of a member of the Isthmian Canal Commission; and Mrs. Maurice Thatcher, first chief of Canal civil affairs. Although theirs were amateur collections assembled in a haphazard way, they were of considerable interest to visitors. One scientist reported that he had obtained specimens which were found to represent species previously unknown to science.

The late C. W. Powell, a construction days employee of the Panama Canal, is credited with providing scientists with the first major part of their knowledge of the orchids of the Republic of Panama.

World Renown

The Powell orchid garden, which existed in Balboa from 1914 until the beginning of World War II, was known to orchid growers all over the world. The garden was sponsored by the Missouri Botanical Gardens of St. Louis. It contained more than 7,000 plants representing nearly all of the species of orchids known to grow in Panama. Many of the plants were sent by Powell to Missouri for classification.

Although the Powell orchid garden is a thing of the past, the interest among local orchid growers has not diminished. Members of the Canal Zone Orchid Society on the Pacific side of the Isthmus and of the Gold Coast Orchid Society on the Atlantic side take their orchids in their stride as part of a way of life. Most of them, while not scientists or naturalists, have learned the language that identifies most species and are adept at producing fine hybrids.

Some of the fine local collections were started by Harry A. Dunn, former medical chief technologist at Gorgas Hospital, who was one of the pioneers in the orchid growing business in the Canal Zone. Before retiring in 1965, he had one of the finest orchid collections on the Isthmus.

Orchid Enemies

Writing in the American Orchid Society Bulletin in 1948, he said he had been collecting orchids as a hobby for the past 15 years, but even at that time the roadside collection of orchids had become a thing of the past. The enemies of the orchid were the lumber companies that cut the trees on which the plants grew, and the native farmers who burned the jungle to make way for their crops. In addition, orchid collectors had sought and collected in most of the accessible places close to home and it became necessary to go further afield in the search for rare plants.

Dunn took a 10-day trip each year to Chiriqui Province in western Panama and collected as many as 1,500 orchid plants of about 30 genera and 54 species. It was his opinion that the Province of Chiriqui was the finest place in the world to get orchids, mainly because the area includes three varieties of climates—tropical, temperate, and cold.

Mrs. Alice Clark, at left, sprays some of her orchids with a fine stream of water, part of an orchid growers ritual which keeps the plants in the pink of condition. At right, opposite page, this orchid, the Lockhartia Micrantha, looks more like a spider than a plant. It is growing in a piece of tree fern and is owned by Mrs. Elizabeth Mercier. At the far right, Canal Zone Police Capt. George E. Martin examines a vanda growing in his orchid garden in La Boca.

Panama, in occupying the narrow land bridge linking the two major divisions of tropical America, has flora indigenous to both north and south. Residents of Panama and the Canal Zone thus have the opportunity of seeing a remarkably representative cross-section of the orchids of the New World.

The Dunn collection was broken up when he left the Isthmus in 1965. But Mrs. Alice Clark, who lives with her husband and family at the top of Ancon Boulevard, got her start in the orchid business when her sister-in-law gave her five orchid plants from the Dunn garden.

Since then, she has traded, purchased, and produced plants that cover two trees, fill one greenhouse, and grow along the side of the hill behind the house in a profusion of white, yellow, and purple. Most of those that are in bloom through most of the year are the vanda hybrids and the bamboo orchids, both of which are terrestrial or ground orchids. Her garden is on the side of the hill and is in the line of march for tourists taking the Ancon Boulevard route to tour the Canal Zone.

Orchid Eaters

Many visitors arrive at her house thinking it is part of the old Powell botanical garden. Although her garden is constantly putting on a show, she seldom loses any of the exotic blooms to human thieves. Orchid-eating deer are her trouble. They sometimes come down from Ancon Hill and eat a whole stand of vandas in one night.

Mrs. Clark says she has learned to know Panama as well as many far away places through the hobby of orchid collecting. She has collected orchids in El Valle, El Volcan in Chiriqui Province, Cerro Campana, and many other parts of Panama including Ancon Hill and islands in Gatun Lake. She has imported some from the Far East and the United States.

Canal Zone Police Inspector Capt. George A. Martin is another veteran orchid grower. He started his collection of plants in 1950 when he was living on the Atlantic side and has obtained some from the Gatun Lake region. Although he began with native blooms, he has branched out into the hybrids and the imported plants, many of which he obtained through trading. Trading, he says, is as good a way of making friends in out of the way places of the world as being a ham radio operator.

Captain Martin, Henry Tooke of Los Rios, and most other orchid collectors here have a number of the large flowered hybrid cattleyas. It is difficult to persuade the average individual that there are others. And yet 80 percent of the wild orchids are small to minute.

Fragrant

The hybrids can be produced by sowing the microscopic seeds and bringing the plants to maturity under precise modern methods, which takes about 2 years. Some of the varieties are quite fragrant.

The most celebrated of the Panama orchids is the *Peristeria elata* commonly known as the Espiritu Santo or Holy Ghost orchid—the national flower of the Republic of Panama. It is a terrestrial type that inhabits the lowland forests. From a cluster of green bulbs, a few narrow leaves rise and a flower stalk 3 or 4 feet high bears a raceme of fragrant white waxy flowers resembling miniature doves which give it the popular name.

In Panama, the Holy Ghost orchid blooms not in the Easter season as one might expect, but in August, midway in the rainy season. New growth starts with the first heavy rains of the year in May.

The Mariposa, or butterfly orchid, is another beautiful species native to Panama. It grows from sea level to 2,000 feet on the espave trees along the banks of rivers.

Orchid Cures

Orchids have been used for medicinal purposes. They cure very common ailments and not as one may think, only exotic diseases. According to orchid expert Walter Richter in his book The Orchid World, a drug known under the name of "salep" is made from the dried bulbs of certain species of terrestrial orchids.

The drug is important for the treatment of serious intestinal illness in children but the production is small because attempts to cultivate salep producing plants for commercial purposes have been unsuccessful and the world sources are becoming exhausted.

The roots of some orchids are used against inflammation of the joints and the flowers of another against dysentery. Orchids are used for many varied medicinal purposes. Some species from Mexico are used as fever cures and for coughs, and some are even good for the treatment of wounds. The bulbs of another are eaten in Jamaica to aid digestion. The bulbs of the Japanese terrestrial orchid are a remedy for toothache.

No orchid is known to be poisonous although the Chinese have been known to extract alkaloids from some species and the leaves of others can cause inflamation of the skin.

INTELSAT II blasts off from Cape Kennedy.

INTERCOMSA

THE EYES AND EARS OF PANAMA

By José T. Tuñón

Antenna brings world events to Panama.

A 98-FOOT BOWL-SHAPED antenna rising from pasture land amid primitive surroundings approximately 20 miles east of Panama City, at Utivé, marks the site of Panama's ultramodern Satellite Communications Station. It was the link between the Isthmus and the epoch-making live telecast from space of man's first steps on the moon that thrilled viewers in Panama, just as it did millions of others throughout the world.

The station is part of the worldwide INTELSAT communications system—International Satellite Telecommunications Consortium—and has placed Panama in the forefront of Latin American nations in the field of telecommunications.

The system is represented in Panama by the Panamanian company INTERCOMSA, S.A. (Intercontinental de Comunicaciones por Satélite, S.A.). The current president of the company is Fernando Eleta Almarán.

The INTELSAT system includes 68 nations which have signed an international agreement for this type of communications in which the United States is represented by COMSAT (Communications by Satellite). COMSAT owns 53 percent of the stock in INTELSAT.

The highly specialized equipment required by INTERCOMSA, both in Panama City and in Utivé, was provided and installed by Page Communications Engineers, Inc., of Washington, D.C. Page is managing the local company until Panamanian personnel are fully trained to take over all operations.

Late in December 1968, the first of two INTELSAT III satellites was placed in operation high over the Atlantic. The Panama earth station made the transition from the earlier INTELSAT II satellite to the new and more powerful satellite early in January 1969 and has since operated commercial circuits through it. INTELSAT III added Mexico and Spain to the countries previously linked with Panama—United States, Italy, and Chile. Next will be England, Colombia, and Canada.

By the end of 1970, Panama will have direct access through the INTELSAT III satellite to the United States, Canada, Mexico, and Puerto Rico; Argentina, Brazil, Chile, Peru, Venezuela, and Colombia, in South America; and Germany, Italy, and Spain, in Europe In addition, an agreement has been reached to route telephone traffic from Central America to all points served by INTERCOMSA. Already there are direct circuits available to nations in areas where telecommunications demand has made communications via satellite more economical.

Panama has received several telecasts by satellite from the United States, Europe, and Asia. Of course, the moon telecast—carried in color by Channel 4 in Panama City—topped all. Among others there were the transmissions of President Richard M. Nixon's inauguration in Washington; a soccer game carried from Liége, Belgium, via Spain; the opening of Expo '70 at Osaka, Japan; and the Good Friday service from the Colosseum in Rome. Both of Panama City's television stations carried these programs and some were carried by the Southern Command Network in the Canal Zone.

Cost has been the limiting factor in these international TV transmissions, but once this problem is solved they are expected to become a regular feature.

The INTERCOMSA installations were completed in a surprisingly short time. Page Communications Engineers was awarded the contract in March 1967; construction began the following month and the first commercial messages were transmitted September 7, 1968. All this was accomplished within the first 4 years after international communications by satellite became a reality.

INTELSAT III is far more powerful than INTELSAT I, which became universally known as the Early Bird satellite. Panama's system utilizes 60 channels, providing telephone, television, photo, telex, and data communications.

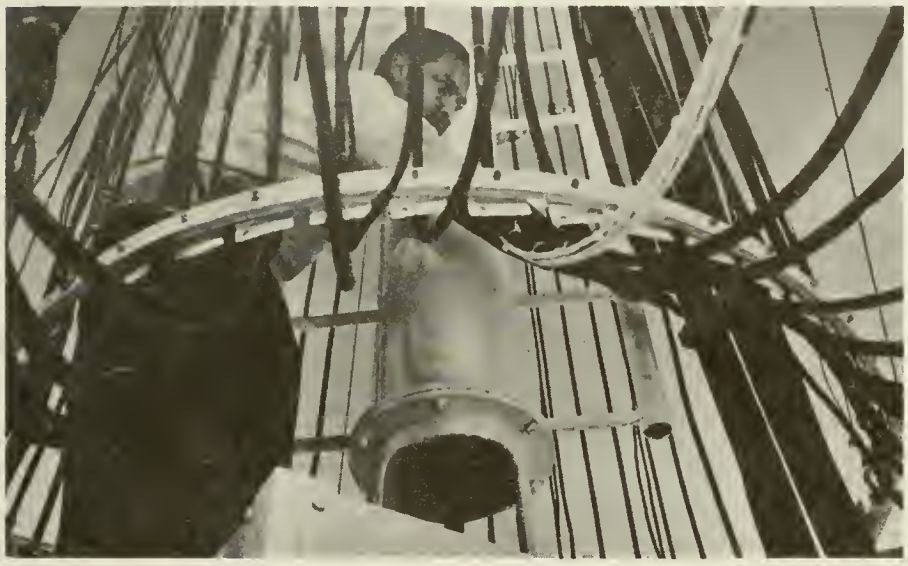
A telephone call via the satellite system begins with the call being received by the International Center for Communications Maintenance, in the Avesa Building on Vía España in Panama City, where it is handled by the INTERCOMSA international operators. The voice signal is combined there with many other channels and is processed for transmission by microwave to the earth station at Utivé. There, the signal undergoes additional processing before being transmitted 23,000 miles to the satellite over the Atlantic by the 98-foot-wide antenna.

The satellite receives the signal, combined with many more from other points, amplifies it and converts it to the carrier frequency of the receiving satellite station. This one, in turn, reconverts the signal from the carrier frequency to the original voice form. The international operator at the receiving end then plugs the call into the local telephone system.

Presently, there are seven INTELSAT commercial satellites in fixed orbits over the equator. They are known as "geostationary satellites" because their orbital velocity at 22,300 miles above the surface of the earth is such that they remain over the same area in relation to the rotation of the earth.

There are two INTELSAT III satellites in operation over the Atlantic. A new series of satellites, INTELSAT IV, providing greater power and increased circuit capacity, is now in the production stage. The first satellite of this series is scheduled for launching in early 1971.

A group of Panamanian telecommunications experts is being trained by INTERCOMSA in the secrets of one of the world's newest professions: satellite communications specialist. Their know-how will contribute greatly to the Republic's efforts to keep pace with modern communications.



ABOVE: Frank Santomenno, right, general manager of INTERCOMSA, and Gary Ross, engineer in charge of operations, study the complex network of satellites. UPPER LEFT: Justo Pinilla examines cables which link the communications station at Utivé with the 98-foot antenna. LOWER LEFT: Electronic technician Nicolas Peters is in training as a satellite communications specialist. He is checking signals sent by central control to the antenna seen through the window.

BALBOA GUN CLUB

SIGHTS SET ON SAFETY AND COMPETITION

THE YEAR was 1914. The Panama Canal was newly completed and the thousands of men who labored to finish the gargantuan task were ready to give themselves the luxury of some leisure time.

It was then that the Balboa Gun Club was born.

The abundance of wildlife available on the Isthmus and the large number of hunting enthusiasts were instrumental in organizing the club, located then on Gavilan Road in Balboa. The clubhouse was adjacent to where the All American Cables Office is today.

The shooting ranges created no particular hazard as the targets were on Reservoir Hill. Shooting matches attracted a larger number of spectators and the number of shooters increased rapidly.

Today it is the oldest and largest recreational organization on the Isthmus.

First Class

Shortly before World War II, the Balboa site was taken over for housing and the club was moved to its present location occupying 8 acres of well-landscaped grounds adjacent to Farfan Beach near the Pacific entrance to the Panama Canal. Here there are first class facilities for skeet and trap shooting, pistol, small bore rifle, large bore rifle, and bench rest rifle firing.

In the early 1950's, the club was incorporated and became known as the Balboa Gun Club, Inc. Membership today is comprised of approximately 600 adults, both men and women, and 90 junior members, ages 12 to 19, from the civilian and military communities of the Canal Zone. There are many father and son teams that spend hours together practicing on the club's ranges.

President of the 56-year-old shooting group is Albert S. Adams. Other officers include: Archie Turner, vice president; Neil A. Doherty, secretary; and James Thompson, treasurer. Competition and activity managers are: Boyd Ferry, Robert Jeffrey, Nat Litvin, Beverly Salter, and Fred Wells.

Safety, Competition

Over the years, the club's main interest has changed from a hunting organization to an activity promoting the safe handling and use of firearms, and for competitive events.

The clubhouse and main shooting ranges are located on the lower level of the neatly landscaped grounds. The pistol range is divided into two sections, one with 30 firing positions and turning targets (used for time shooting) at a distance of 50 and 25 yards. The other has six stationary positions for precision firing at a distance of 25 yards. Also in this area is the range for small caliber rifle with 20 positions for match shooting at 50 feet, 50 yards, 50 meters, and 100 yards.

Perhaps the most popular place on the lower level of the grounds is the shooting gallery used strictly for "fun shooting" with .22 caliber rifles using light gallery ammunition.

The 200-yard range for high-powered rifles and bench rest competition is at an intermediate level above the small bore rifle range.

Skeet and trap shooting are done on the highest level, on the crest of a rise about 30 meters above Ezra Hurwitz road.

Hit The Tack

Many kinds of shooting competitions are held at Farfan. Among the newest is the "tack driving" contest. The shooter aims his precision rifle from a bench rest at a thumbtack in the center of a small white target at a distance of 200 yards. This is so difficult that since this competition began 2 years ago, only five members have "hit the tack."

The Balboa Gun Club is affiliated with the National Rifle Association, National Skeet Shooting Association, and Amateur Trap Shooting Association.

Junior members are coached every Saturday morning in small bore rifle marksmanship and safety by trained instructors such as Sgt. Beverly Salter

Father, Son Team

An important function of the club is shooting instruction. Here James L. Collins, Jr., coaches his son, James L. Collins III, in .22 caliber prone position firing.

of the U.S. Air Force. The senior members provide rifles, targets, and other equipment for the boys' use at no charge.

Many fine marksmen have been rated as Distinguished Experts by the National Rifle Association. Among these outstanding shooters of the Balboa Gun Club is Dana Ferry, 16, a junior at Balboa High School. He scored 387 out of a possible 400 in the recent National Junior Sectionals placing him with the 25 or so best junior shooters among the 5,000 listed in the United States.

Only Shooter

Women members of the club, although few in number, have distinguished themselves as shooters. Mrs. Klara McKeen is the only pistol shooter to participate in the U.S. Army Southern Command, Commanders Pistol Matches, for 2 consecutive years.

Safety is the watchword of the gun club. During its 56 years, only one minor accident has occurred, and that was 30 years ago.

Accidents are avoided as all match firing is done by specific command and easy to follow safety rules are rigidly enforced at all times—J.T.T.

Tracy Howard staples .22 caliber targets at the 100-yard range. All shooting stops when targets are being put in place. Such safety rules keep the club accident free.

TOP: Targets appear only as small black dots on the 100-yard small-bore range. From left are Ken Andersen and Boyd W. Ferry. Andersen has just fired and is checking his target through a scope. ABOVE: Scoring a target can be a difficult job if the grouping is close. Ferry uses a pointer to determine whether a slug has touched the white line which would give the shooter the next highest count. In center is Fred E. Wells. Supervising the scoring is Robert S. Jeffrey, administrative assistant to the Governor.

Following a round of firing, Ken Andersen "scopes" his target to check on his score. The targets are so far away that shooters must use telescopes to see the holes.

Malaria

The fight goes on

By Willie K. Friar

Breakthrough in malaria research made in Panama

Cebus (white-faced or capuchin), well known as the monkey that collected money for organ grinders in years past, is among the species in which human malaria is being grown for research purposes.

MONKEYS ARE becoming man's best friend in the fight against one of the world's most destructive diseases—malaria.

Scientists working in Panama have succeeded in infecting Panama monkeys with human malaria which means that monkeys can partially replace human volunteers in the testing of anti-malarial drugs and that the disease can be more carefully studied under laboratory conditions.

This breakthrough has far reaching implications, for despite the development of new drugs and new insecticides, malaria remains a major health problem in many parts of the world and much more research is needed.

Malaria is caused by a minute animal that lives, prospers, and multiplies rapidly in the livers and blood streams of humans once it has been injected by the blood-sucking female *Anopheles* mosquito. But until recently, all efforts to grow the human parasite in small animals failed. The importance of this breakthrough can best be understood by a look at the history of the disease.

Examining a blood sample containing malaria parasites is Dr. Martin D. Young, director of Gorgas Memorial Laboratory, who has 35 years of experience in malaria research.

Wartime Casualties

Malaria is an old enemy. Julius Caesar saw many of his men suffer and die of the disease during the Roman civil wars. Napoleon's forces were ravaged by it. Malaria caused more than 5,000 deaths during the Spanish American War, and in World War I campaigns were stalemated for months because British, French, and German troops alike were immobilized by the disease.

During the battle for Sicily in World War II, more American and British soldiers were put out of action by malaria than by the weapons of the enemy.

Not only has malaria determined the outcome of wars, but it has stymied the building of cities, roads, railroads, industries, and many of man's great undertakings. Its destructive role in the construction of the Panama Canal is a classic example. During 1906, the records show 821 Canal employees out of every 1,000 were admitted to hospitals for malaria treatment.

Newcomers to the tropics quickly learned that it was not the visible pests, the snakes, the biting ants, the stinging fish, or the jungle animals, but a minute organism unseen by man that was the dangerous enemy.

An Old Enemy

Later, new drugs and new insecticides were discovered and the old enemy of ancient armies seemed close to being conquered. Then came disturbing reports from Vietnam. American soldiers were getting malaria and it was a kind that the new drugs didn't cure. Also, DDT and other insecticides were not killing the mosquitoes as they once did.

It became apparent that more research was necessary. Man's old enemy was far from being conquered. Better anti-malarial drugs were urgently needed.

Scientists' success in infecting these monkeys with human malaria means they can now partially replace humans in the testing of new drugs.

A lively Ateles (Black spider) with his tail wrapped securely around Dr. Young's arm warns intruders they are not welcome.

The fight against malaria has been an international one. It was a French doctor who in 1880 first saw the malaria parasite. He discovered the minute animal living in the blood of malaria patients. Later, in Italy, doctors connected the periodic fevers of malaria patients with the periodic reproductions of the parasites already in their blood, and demonstrated that it was possible for attacks to come later in places where there were no mosquitoes.

British doctors tried to infect volunteers by mosquito bites but failed. Finally it was discovered that the malaria parasite needed an incubation period in the mosquito. Then in 1898, British Maj. Ronald Ross, while dissecting mosquitoes in India, discovered the truth. The parasites reproduced asexually in their human hosts, but in stomachs of the mosquitoes they developed a kind of sexual reproduction. Their hordes of offspring migrated to the insect's salivary glands where they waited until, if they happened to bite an uninfected human, the transmission cycle was complete. It was Ross who made the important discovery that it was only the *Anopheles* mosquito, and only the vampire female, who performed this task.

One of the first steps toward the conquering of malaria began after it was found that mosquitoes transmitted the disease. Control measures such as eliminating breeding places by drainage or putting oil on the water of lakes and ponds, protecting people with screens, and killing mosquitoes with insecticides proved effective in preventing the disease.

These were the methods employed by Col. William C. Gorgas in the sanitation work that made possible the building of the Panama Canal. These methods, however, were successful only if vigorously pursued.

Gorgas drove his men relentlessly and once told a story about a weary sanitation inspector, who on a very hot day after pouring oil on a number of mosquito breeding places, returned to his hotel and in a final gesture of complete exhaustion dumped his remaining supply of crude oil into the cistern on the hotel roof.

Soon, a Navy officer arrived at the hotel, and went to his room to bathe. He stripped off his clothes, stepped into the shower, covered himself with liquid soap, and pulled the chain to release the water. Out came the sticky oil which mingled with the soap to make a gooey coating that could not be washed off.

Pancho, the lab's pet, looks for cigarettes in Dr. Young's pocket.

There was no other water available. The officer couldn't put on his clothes, so he wrapped himself in a sheet and went to bed. The next morning, still wearing the sheet, he set out to find the sanitation inspector. But someone, in an attempt to calm the outraged bather, told him that the sanitation inspector had died of yellow fever. The well oiled Navy man responded with, "I'm damn glad of it."

There has been no letup in the fight against malaria since the Americans first took over the project of building the Canal. The Canal Zone Division of Sanitation now has 123 men, all Panamanians, who clean more than 400 miles of drainage ditches each year. They help the health authorities apply residual insecticide twice each year in the dwellings of more than 150 land licensees.

Blood smears are taken regularly and the residents whose smears are found positive for malaria are given weekly doses of an antimalarial drug for 14 weeks.

The budget for the Division of Sanitation is $400,000 a year and its employees spend 60 to 70 percent of their time in the continuing fight against malaria. The operation still includes such well known practices as draining mosquito breeding areas, cutting away underbrush, and the use of chemicals to kill the larvae throughout the Canal Zone.

Although the malaria rate among Canal Zone employees may, in the future, decrease to zero, it is practically impossible to eliminate the mosquito. The practical control objectives of the sanitation forces are to reduce the numbers of mosquitoes breeding and to selectively kill those mosquitoes resting on walls in houses by putting residual insecticide on the walls.

Human malaria parasites were first grown successfully in the night or owl monkey.

Colonel Gorgas used all these methods along with daily doses of quinine for all construction workers. Quinine became known about 3 centuries ago after Count Chinchón sailed from Spain to become Viceroy of Peru. One story is that at Lima, the count's wife, the Condesa de Chinchón, contracted malaria. A local citizen recommended a medicine which the Indians made from the bark of the quina-quina tree which is native to the Andean foothills, and now named in honor of the Condesa.

The countess drank the bitter medicine and recovered. The Jesuit mission-

(Please see p. 12)

Thousands of Anopheles mosquitoes which transmit malaria are grown in the Rand Insectory at Gorgas Memorial Laboratory for research purposes. Dr. D. C. Baerg examines mosquito larvae growing in white metal trays.

(Continued from p. 11)

aries began to collect the bark and spread the word of its medicinal value. By 1750, the value of "Peruvian" or Jesuits'" bark was well known to the medical world even though the facts about malaria were still shrouded in mystery.

Quinine remained the usual treatment for malaria until World War II when the shortage of quinine resulted in an intensive search for other drugs. One of the drugs developed in the early 1930's was Atabrine which had the disadvantage of turning some people a yellowish color.

Most people objected to the coloring, but a doctor told a story of a Fiji Islander who found his new color made him so attractive to the local girls that he stole Atabrine from the Army dispensary to keep up the coloration after he had been cured of his malaria.

Other drugs were developed without such side effects, and quinine began to play a smaller and smaller role in malaria treatment until in recent years when drug resistant strains of malaria appeared.

No Substitute

Now the search is on again for new and better medicines. The finding and testing of new drugs, however, is always a long, expensive, and complicated process. Until recently, new malaria drugs had to be tested in humans because there was no practical animal substitute. This has many disadvantages. There have never been enough human volunteers and although prisoners volunteered during the war, questions of security often posed big problems.

Also, it is difficult to know that the human patient has taken the medicine even in hospitals. Sometimes for reasons of his own, the person does not take the drug.

Gorgas ran into this difficulty in his malaria work. He reported one somewhat humorous and unexpected incident. He had built a convalescent hospital on the island of Taboga for patients with the more severe cases of malaria. The convalescent treatment was designed to rid the patients' blood of malarial parasites and prevent them from becoming carriers. The treatment consisted of large doses of quinine continued for 10 days after the fever ceased.

Turkey Gobbler

Gorgas noticed one day that an old turkey gobbler which was a hospital pet was acting strangely. He staggered around as if he couldn't see. On investigation, Gorgas discovered that a number of the malaria patients, when they were given their daily dose of quinine in the dispensary, threw their tablets out the window. The old turkey developed a taste for the tablets and the stimulating effects of the quinine and gobbled up all the tablets he could find. He became so dissipated in this way that he finally developed amblypia, a kind of blindness caused by too much quinine. The doctor had to confine the old turkey to keep him away from the quinine until he recovered his sight.

Malariologists work today toward finding a way to control malaria not only in small sanitized areas like the Canal Zone where through strict control measures the disease has been almost eradicated, but in the vast jungles of the world where such methods as drainage and spraying with insecticides are impractical.

But for effective research, there was an obvious need for a small animal that could be infected with malaria. Since the discovery of the malaria parasite 90 years ago, the parasites have been found in reptiles, birds, apes, and monkeys, but attempts to grow human malaria in birds and monkeys in the laboratory were not successful.

Scarce Animals

It was known that human malaria would grow in chimpanzees and gibbons whose spleens had been removed. But these animals are scarce and very expensive as well as difficult to handle.

At Gorgas Memorial Laboratory in Panama, Dr. Martin D. Young, director, who has worked with malaria for 35 years, began trying to grow malaria in Panama monkeys, although past attempts to grow malaria in small monkeys had failed.

The new technique which Dr. Young planned to use was based on the reasoning that the immunity of the monkeys to human malaria might be reduced by using some of the recently developed drugs that have been used for suppressing immunity in the case of organ transplants. These drugs prevent the body from rejecting foreign substances, such as transplanted hearts. Also, the monkey's spleen, which helps fight disease, would be removed.

The experimental work was begun at the laboratory. Blood was taken from patients who had malaria and was injected into various monkeys belonging to the seven species of Panama monkeys. After 6 months the first successful results were obtained when the parasite, *Plasmodium vivax*, a species of malaria, grew in the small night or owl *Aotus* monkey.

Allowed To Bite

Later experiments showed that the mosquitoes which transmit human malaria could be infected by biting these monkeys. To further prove that the malaria in the monkey was the same human malaria that had been injected into the monkey, these infected mosquitoes were allowed to bite two human volunteers who were staff members of

the laboratory. Within the normal 11 to 12 day incubation period they developed malaria. To complete the cycle, blood from these volunteers was injected into other monkeys and produced infections.

This work proved for the first time that human malaria could be grown in small monkeys and soon laboratories in other parts of the world verified these findings. Continuing investigations showed that other monkeys common to Panama could be infected with human malaria. The parasites grew well in the black spider monkey, the red spider monkey, and in the Panama marmoset.

So, in Panama, in the laboratory that is a memorial to one of the world's greatest malaria fighters, a very important breakthrough in the war on malaria was made.

New Findings

Later experiments showed the parasite could be grown in monkeys without resort to immunity suppresant drugs and without spleen removal.

Attention was given then to the growing of the most dangerous malaria parasite, *Plasmodium falciparum*, in monkeys. This possibility was particularly important as some strains of this species were resistant to the best malarial drugs. A scientist in the United States then found that an African strain of this malaria would grow in the *Aotus* monkey from Colombia.

Later work at Gorgas Memorial Laboratory showed that this African malaria strain and strains from Southeast Asia would grow not only in the Panama Aotus monkey but also in the white faced capuchin *Cebus*.

Continue Learning

Now Gorgas scientists are using these monkeys to continue learning more about malaria and how these animals may be used as a partial replacement for human volunteers for the development of better antimalarial drugs.

Dr. Young, while discussing this important breakthrough in malaria, said: "The bright possibilty that malaria can be eliminated from the world is a breathtaking prospect charged with far-reaching significance. It would mark the first successful elimination of a major disease from this planet. It would improve the health, happiness, well-being, and economic status of vast segments of the world's population. It gives hope and a design for further conquests of disease, especially those transmitted by small insects or those which can be attacked by drugs."

SOME ODDITIES IN THE HISTORY OF MALARIA

During Canal construction days these men were part of an army of sanitation workers whose job was to spread oil on mosquito troubled waters. The barrels in the foreground contain the oil. The mule is hauling drinking water for the sprayers.

EVEN AFTER the discovery of quinine it was not universally accepted as a treatment for malaria and many home remedies were used. Beverages made of sassafras roots, cherry bark, or horse manure were used and one country doctor treated himself with salt and pepper.

For many years, people were convinced that malaria was caused by water vapors.

So many workers were infected with malaria when the banana plantations were being started in Central America that there is good reason to believe that there would be no bananas today except for quinine and other antimalarial drugs.

A doctor in Apalachicola, Fla., once recommended that Washington, D.C. be enclosed in a giant screen to keep out malaria carrying mosquitoes.

The colony established by the English at Jamestown, Va., was almost destroyed twice by malaria. It is believed that the colonists moved to Williamsburg because of it.

In the Canal Zone, all screened doors swing outward because inward swinging doors favor entry of insects which may be on the doors.

Although the Anopheles female is a voracious vampire which dines on blood at every opportunity, the male is a namby-pamby, mild-mannered vegetarian.

At one time it was believed that whiskey would prevent malaria and it was issued to sailors in the Confederate Navy every morning. A popular cocktail during Canal construction days was 4 grains of quinine in an ounce of rum.

Culinary Capers

Pan a ma (pan ah má), *n.*
[probably Choco Indian.] An abundance of fish.

By Fannie P. Hernandez

EARLIEST HISTORICAL chronicles on dining say the eating of fish was prohibited to mortal man in pagan times and note that the gastronomical privilege was reserved solely and exclusively for the gods. Fish was held sacred and holy. And there was weeping and wailing for the dead aquatic creatures which washed upon the shores.

Down through the ages, legend after legend has carried the symbolism of fish as it has been depicted in paganism, Christianity, love, romance, fertility, prophecy, and hieroglyphics.

In prehistoric eras, many people in Asia worshipped a fish god. So did the Egyptians and the Greeks. At the time of Christ, Ichthus, the fish, was the symbol worn by the Christians in the catacombs of Rome.

In the Middle Ages, the fish symbol meant light and intelligence. And in the Zodiac, the sign of two fishes denotes love and wisdom. Fish are still honored as sacred symbols in parts of India. The symbolism of fish remains also in parts of the world where the traditional blessing of departing fishing fleets and their catches still takes place.

With the passing of the Dark Ages, the taboo on fish eating disappeared. During medieval times, the eating of fish became a way of Christian life. Counting Fridays, Lent, and all the other days of fasting, meat was excluded from the menu for almost half the year. Fishing came to play an important role in the destinies of nations as it prepared the way for sea trade.

Fish contains a rich combination of vitamins, minerals, and proteins and ocean fish contains 50 to 200 times as much iodine as any other food. No other food supplies so great a degree of these essentials of the daily diet. Most important, too, is the fact that the low calorie content in fish permits weight watchers to indulge almost at will in the delight of succulent fish dishes.

At the 1969 Fish Expo held in Boston, Dr. Frederick J. Stare, professor of nutrition at Harvard University, and a great believer in fish as a major item in today's diet, said, "Fish belongs in diets designed to lessen the development of our main cause of death today—coronary heart disease. It has less fat and fewer calories per ounce than other meats."

In purchasing fish the main thing is that it must be fresh. If it smells like fish, it isn't fresh. The skin and scales should be brilliant, the flesh firm and if the head is still attached, the eyes should be bright, clear, full, and bulging. It is recommended that if the fish cannot stare back at you, have nothing to do with it.

In buying frozen fish, make sure it is frozen solid and has little or no smell. Frozen fish stays fresh for about a month if it is well wrapped and kept frozen. It should not be thawed at room temperature or in warm water, but in the refrigerator. Frozen fish sticks and portions are cooked without thawing.

Before cooking fish, wipe it with a cloth which has been dipped in salt water and wrung out. This does not take away the flavor as washing does. If the fish must be washed, do it quickly and pat it dry. For better flavor when serving the fish whole, let it keep its head. A headless fish loses its juices.

In cooking fish, leave the skin on it as the best flavor in fish is found just under the skin.

Corbina, a prized catch from Panama's Pacific waters, is displayed by Cristobal Villarreal, head chef of the Union Club of Panama.

Corbina is a favorite food on the Isthmus. The recipe for Corbina a la Villarreal is on the next page.

Fish Fare

Red Snapper is perhaps the most colorful food fish in the sea and it is in season all year around. The meat is juicy and white and has a fine delicate flavor. It can be broiled, baked, steamed, or boiled but many consider a baked red snapper a real treat.

Baked Red Snapper

3 or 4 pound red snapper, whole
1½ tsp. salt
2 tbsp. melted butter

Sprinkle inside and outside with salt and stuff the fish loosely. Place on a well greased baking pan and brush with butter. Bake in a moderate oven at 350 degrees for 40 to 60 minutes or until the fish flakes easily. Baste it occasionally with the melted butter.

Stuffing

¾ cup celery, chopped
½ cup onion, chopped
¼ cup melted butter
1 quart bread cubes
½ cup sour cream
¼ cup lemon, peeled, and diced
2 tsp. lemon rind
1 tsp. paprika
1 tsp. salt

Cook the celery and onion until soft and combine with all other ingredients. (If it looks too dry add a little more melted butter.) Serves six persons.

For the broiling method of preparing fish we have selected the excellent corbina from Panama's Pacific waters. The following recipe has been contributed by Cristobal Villarreal, the head chef of the Union Club of Panama, whose outstanding success in cooking the fish has made it one of the true epicurean treasures in this area:

Corbina A La Villarreal

2 pounds fillets of corbina
4 tbsp. melted butter, plus 6 tbsp. butter for sauce
1 tsp. salt
dash of pepper
1 tbsp. flour
2 tsp. chopped parsley
1 anchovy fillet, mashed

Use thick fillets and cut into portions. Brush with melted butter. Preheat oven and broiler at 500 degrees for about 10 minutes. Dust the fillets with flour, salt, and pepper. Arrange on oiled broiler pan and place about 5 inches from the flame. Baste with melted butter twice while cooking for about 8 minutes, or until the fish flakes easily. Remove from oven and cover with hot butter sauce to which chopped parsley and anchovy have been added. Or add chopped toasted almonds in place of the parsley and anchovy. Serves six.

Fish and Rice

A breakfast food common in parts of India called Kitcherie was refashioned by the British Colonials to suit their tastes. By substituting fish for beans or lentils in the original recipe, they came up with a delicious fish and rice dish called Kedgeree. Here is a recipe for Kedgeree contributed to Culinary Capers by His Excellency Ronald Scrivener, Ambassador of Great Britain in Panama:

Kedgeree

1 cup rice
1 pound cooked fish
1 tbsp. butter
1 hard-boiled egg
1 raw egg
½ cup fresh cream
salt and pepper

Wash a cup of rice, boil it and dry it in the oven. It must be very firm and not soggy. Flake the cooked fish which may be cod, turbot, haddock (fresh, of course, not canned). Heat the butter in a saucepan. Chop the hard-boiled egg and add it. Season. Add the rice and then the raw egg. Turn down the flame and stir all together. Add as much cream (milk will do) as you need, remembering not to make it runny. Sprinkle with chopped parsley before serving. Serves six.

Escabeche

Escabeche, which probably originated in Spain during the rule of the Moors, is common in all Spanish speaking countries. Here is a version our readers may want to try using grouper, corbina, snapper, or any fish fillets available.

2 pounds fish fillets
2 onions, sliced thin
2 cloves garlic, minced
3 tbsp. flour, cornmeal or fine breadcrumbs for dredging
1 tsp. black pepper
1 tsp. salt
bay leaf
1 tsp. oregano
1 tbsp. chopped parsley
½ cup olive oil, (¼ cup for frying)
½ cup vinegar
¼ cup water
onion slices
halved black olives
pimiento pieces

Cook onion and garlic in oil until soft. Remove from oil. Dredge fish fillets in flour, to which salt and pepper have been added. Fry in hot oil for about 5 minutes or until brown. Arrange the fried fish in a serving dish. Mix the vinegar, oil, water, and spices and pour over fried fish. Cover with onion slices and olives. Put wax paper over dish and refrigerate for 24 hours. Occasionally spoon marinade over fish. Serves six.

In The Wake Of The Conquistadores

By Louis R. Granger

NAVIGATOR, mapmaker, explorer, sailor—Kit S. Kapp, master of the ketch *Fairwinds*, has made his home in the wake of the Conquistadores.

The gregarious man from Cincinnati who once was heading towards the "normal" nine to five life behind a desk, has proved that there are still plenty of virgin territories for the historian, archeologist, and explorer.

Along the Spanish Main and in the jungles of Panama and Colombia, Kapp's expeditions have taken him to uninhabited islands that once were pirate hideouts or Spanish fortifications, and deep into the Darien jungles to ancient towns and Spanish gold mines.

He has headed nine official expeditions under the auspices of the famed Explorers Club of New York. Traveling in his 50-foot sailboat, Kapp was accompanied by interested adventurers made up of "spirited, intelligent men and women" willing to spend weeks and sometimes months sharing the finances and the duties afloat and ashore. Many have come from the Canal Zone and Panama City, and others from the United States, South America, and Europe.

At a boyish 43, Kit S. Kapp (his real name) has retained an excited interest in his work that may have come from years of not having to worry about house payments, the stock market, and whether or not he gets to work on time.

Born in Cincinnati, Kapp was graduated from the University of Cincinnati in 1950 with a B.A. in business administration. After serving 2½ years in the Army and later receiving an ROTC commission in the Air Force, Kapp decided he needed a vacation and a bit of adventure. He headed for the West Indies.

There he bought a 41-foot ketch named the *Fairwinds* and got into the charter business. It was a financial suc-

OPPOSITE PAGE: Sleek and sturdy, the 50-foot ketch "Fairwinds" heads out on another voyage to adventure.

RIGHT: The Explorers Club flag, displayed by Capt. Kapp and his wife Valerie, has been taken on many of their expeditions.

LOWER RIGHT: The arrow points to where Kapp expects to find the old city of Santa Maria la Antigua, the first Spanish settlement of Central and South America.

cess almost from the beginning, but there was something lacking. "It was like running a seagoing taxi service," laments Kapp.

He bought his present 50-foot ketch, also named the *Fairwinds*, in 1955 and built a home in St. Thomas, Virgin Islands, shortly afterwards. "But this wasn't for me. It became a rat race in the Caribbean. It wasn't creative enough," he said.

Heading south to Panama, Kapp began a self education program of exploration. Cartography, he explains, was like doing his graduate thesis work.

He made trips to Europe to systematically search museums, libraries, and archives in an attempt to locate the sites of early Spanish settlements from centuries-old charts and prints. These documents sometimes reveal historical and geographical facts not found in books and manuscripts, he said. Often, such searches give tips to old spellings and former names no longer used.

Dual Purpose

Kapp also buys old maps and charts which serve a dual purpose—to verify his studies of place names and locations, and to sell at a profit to help defray his exploration expenses.

While studying old charts in London a few years ago he discovered something in British naval history that caused quite a stir among museum historians.

While examining an 18th Century chart of St. John's, Virgin Islands, Kapp noticed that the cartographer signed himself H. Nelson. Adm. Lord Horatio Nelson, the most famous of British naval heroes, was not known to have ever been a cartographer, but Kapp had a hunch. He knew Nelson had married a woman from Nevis, a British island in the Leeward Islands, and that he had spent many years in that area of the Caribbean.

Unruffled Stride

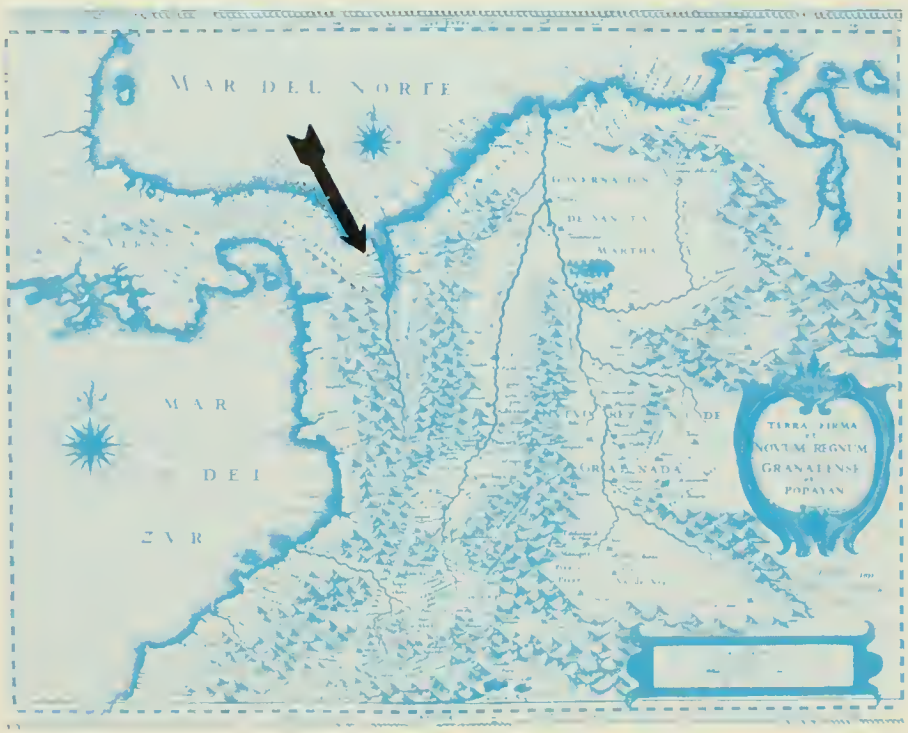
He compared an original signature of Admiral Nelson to that on the St. John's chart. They appeared to be the same. British Museum historians thought so too and were quite surprised at the discovery. Kapp took the discovery in unruffled stride and left the museum authorities scratching their heads.

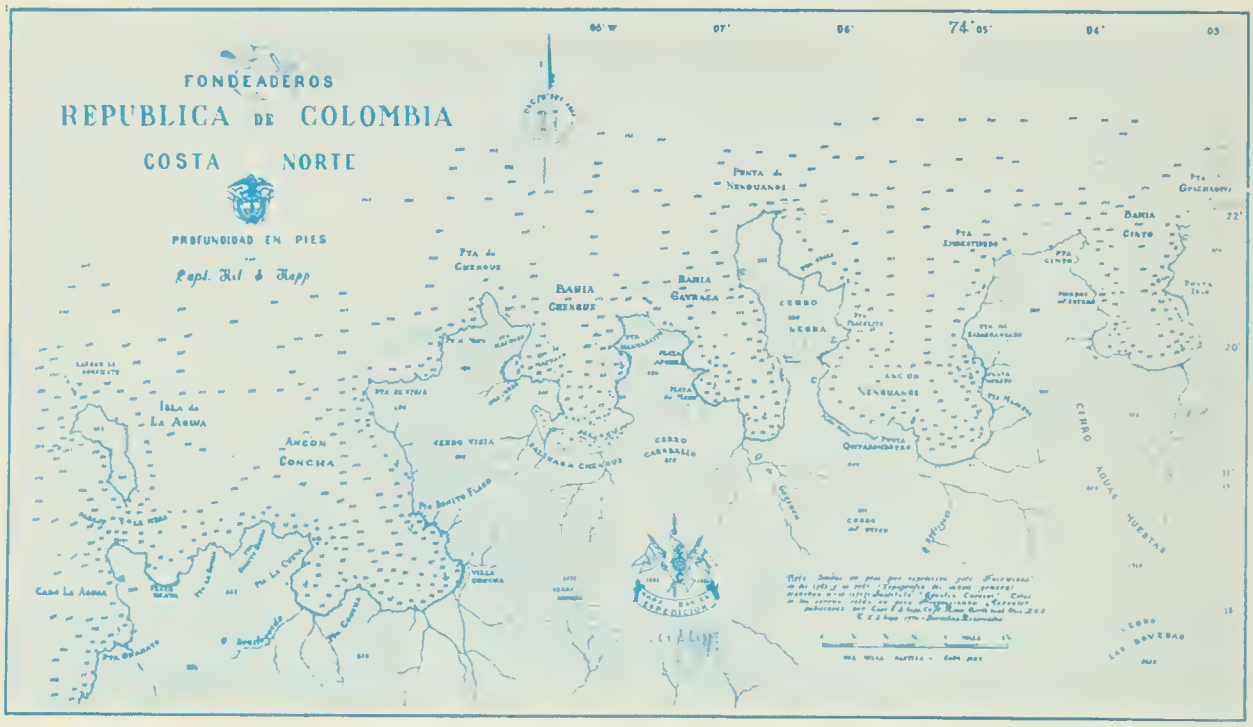
His interest in cartography has led to the publication of charts of Jamaica, Isla Roatan, Honduras, and Mandinga and Carti Keys in the San Blas. He has produced a preliminary large scale chart of the uncharted coast between Isle of Pines and Ailigandi and has submitted innumerable chart corrections of many Caribbean areas to the U.S. Hydrographic Office and the U.S. Navy Oceanographic Office.

Off and on for the past 8 years, Kapp has sailed among the islands of the lower San Blas, from Playon Chico Village to Anachucuna (near the Colombian frontier), making painstaking sightings and depth soundings in an area that was last surveyed more than 160 years ago.

The latest San Blas chart is published by the U.S. Navy Hydrographic Office

(Please see p. 18)





This chart of the northern coast of Colombia was made by Kapp during expeditions along the Spanish Main.

(Continued from p. 17)

and is of the northern part from Nombre de Dios to Brava Point. Where this northern part ends and the southern part begins the chart states that "the coastline and off-lying reefs to the eastward of Mono River is enlarged from a Spanish chart published in 1817." Kapp's chart will be the most up-to-date.

Kapp's first sailing expedition was the start of a series of three beginning in 1961 stretching from the Virgin Islands to Carúpano on the Venezuelan coast near Trinidad and then on to Bocas del Toro at the northwestern end of Panama and back to the Virgin Islands—a total of 3,500 miles.

The captain explains the secrets of map making. On the table is a chart of Port Royal Harbor.

Forgotten Tidbits

"We were in search of abandoned forts and lost settlements and endeavored to uncover any forgotten tidbits of Hispanic history. We were amazed to find a number of inaccuracies on the modern charts. In the San Blas Archipelago alone we uncovered two ancient Spanish fortifications, unknown to the National Archives of Panama," Kapp said.

In 1962, with a crew of seven, the *Fairwinds* sailed out from the Virgin Islands and headed for the tiny island of Orchila which, unknown to the adventuresome group, was used by the Venezuelan government as a political prison. Their chart, however, showed it to be barren and abandoned.

An incident that would make a Hollywood writer envious occurred while tacking up to the island to find an anchorage.

Pouring Smoke

"A large grey ship about 120 feet long without a flag or any identification bore down on us. She was really pouring smoke (moving fast). We got out of there but the ship chased us for about 6 hours. Finally we lost them in a squall, but not before the crew opened up on us with automatic weapons." (The *Fairwinds* was not hit.)

Not associating the ship with the island, the *Fairwinds* sailed back to Orchila where all hands were immediately arrested on suspicion of being part of a political escape plot.

Luckily, the island commander, a Venezuelan naval officer, had attended Columbia University in New York City and greeted his unwanted and surprised American visitors like cousins. Even so, they were held captive for a day until other government officials determined they were not attempting to release any of the prisoners.

Lightning Strikes

On that same cruise, in a squall off the Darien coast, the *Fairwinds* was struck by lightning. It stunned the crewmember at the helm, started a fire in the engineroom, knocked out the entire electrical system, and burned the mast. Repairs made and the injured treated, the journey was resumed.

"The purpose of investigating the antiquated fortifications along the coast was to make a comprehensive study of their construction, design, choice of location, and specific materials used. This information will prepare us for locating the ruins in the Darien which have been abandoned to the jungles for hundreds of years," Kapp said.

One of the tasks set by the expedition

was to locate the site of the first capital of Terra Firma (on old charts the area that comprises parts of Panama and Colombia), Santa Maria la Antigua, in the western part of Colombia near the Panama border. They located an area 12 miles in the jungle which once was believed to be the site, but ruled it out on the basis of logic and a historical description of 1516 which indicated it should be close to an anchorage.

"We proceeded to investigate every possible harbor along the Gulf of Uraba and were able to narrow the possibilities down to four locations. In one of the most logical bays, we found an unknown battery and man-made submerged seawall," Kapp said.

Time for this portion of their journey ran out and they were unable to continue their investigations. Kapp says, however, he may return and possibly make excavations if more evidence is found to indicate that the site was the location of Santa Maria.

Gulf of Uraba

During the search for Santa Maria, Kapp was able to chart the Gulf of Uraba. This has been published by the Republic of Colombia.

During his travels along the coasts of Panama and Colombia, Kapp developed a scholarly interest in the Cuna Indian culture. He became so interested he moved his base of operations from the Virgin Islands to Cristobal, on the Atlantic side of the Panama Canal, and to Cartagena, Colombia.

A sometimes freelance writer, Kapp is studying Cuna medicine dolls and "mola" designs as they apply to the Indian medicine. He plans eventually to write a book on the results of his studies.

The mola consists of layers of various colored cloth sewn together and cut through to bring out a particular color which forms a design. Cuna Indian women make blouses out of them. Each blouse consists of two brightly colored molas plus short sleeves and a yoke.

Nose Rings

The Cuna women also wear large gold nose rings, and beaded legbands. Medicine dolls, made of balsam and other harder woods, are used by the medicine men to remove the evil spirit from within a sick person. The doll rescues the abducted spirit and the patient is restored to health.

Kapp has published "*The Printed Maps of Jamaica Up to 1825*," and is working on two other books, maps of Panama, and maps of Colombia.

While in Jamaica, Kapp met and married a petite, pretty English girl, Valerie. She properly fits in with the nautical life, having been born on the seafaring Isle of Wight off the southern coast of England. Eric, his 14-year-old son of a previous marriage, sometimes joins the expeditions when his school vacations allow.

Greatest Undertaking

Kapp is now preparing for his greatest undertaking—to locate and explore the fabled city of Eldorado. He is presently working on financing the trip. According to legend, Eldorado was fabulously wealthy and the most cultured city of northern South America.

What drives Kapp and that exclusive fraternity of men and women who have left the grass cutting, the carpools, church outings, and mortgage payments? Independence? Freedom? A drive to do the unusual—something that has not been done before? Or merely escape? It is possible all of these things are part of it. For example, Kapp applied to the National Science Foundation for a grant to help finance an expedition to Roatan, an island off the the northern coast of Honduras. "The request was turned down, but I went ahead and did it anyway. I get carried away sometimes," he said.

Kapp has difficulty in explaining his way of life and the satisfaction he gets from it.

Swashbuckling

"I really can't say in one paragraph what it's all about. As much as I've explained it to my father, he still doesn't understand what I'm doing. I wanted to do something scientific and I enjoy traveling and the romance of the old days—the swashbuckling days of the pirates, not the blood and guts of it, but the times, the treasures and the people," Kapp explains enthusiastically.

"I have pride in seeing my charts published and being accepted by the scientific community. The Explorers Club says that exploration should be well planned, sophisticated, and something that hasn't been accomplished before. The difference between adventure and exploration is scientific advancement and that's what we attempt in each of the expeditions."

Kapp's effort cannot be measured by the same standard as those of Perry or Lindberg, but he and the rest of the world's wanderers are from the same mold.

Henry David Thoreau explained it succinctly when he wrote:

"If a man does not keep pace with his companions,
perhaps it is because he hears a different drummer.
Let him step to the music which he hears,
however measured or far away."

Kapp takes time out from his work in charting the San Blas Islands to make friends with two Cuna Indian girls. The children are wearing the typical "mola" blouses and one girl a nose ring, traditional among the Cuna women.

Panama's Money Trees

THE OLD ADAGE that money doesn't grow on trees doesn't hold true for Panama. It does, and probably in your own back yard.

Two enterprising brothers saw the green shimmering in the trees years ago and now slowly but surely are cashing in on a relatively untapped Panamanian resource—dried plants that can be used for table arrangements.

The pair, Davis and Sydney Stevenson, both U.S. citizens born and reared in Panama, operate the Tropical Plant Products Co. on a 50-acre farm in the Pedregal area between Panama City and Tocumen Airport.

The products literally grow on trees and vines. They are the large curly cecropia leaves, acacia pods, ferns, hops, sea oats, sea grape leaves, wood roses, palm sprays, ginger lillies, the handsome heliconias which grow wild along the roads, and dozens of miscellaneous flora eagerly sought by florists in temperate climates where tropical plants are rare.

To date, neither brother has taken a salary nor any profits from the farm operation. All earnings are returned to the company in the form of land purchases, salaries, seedlings, machinery, and raw materials.

But they see a lucrative future not only for themselves, but for the Panamanian economy as well. All the raw materials including seedlings, plastic bags, paper collars for the bags (these are printed with the name of the plant and are stapled over the bag opening), cardboard boxes for shipping, and many other small items, are bought in Panama. Even farm machinery not manufactured in the Republic is purchased through local companies.

Bankrupt

The future was not always as bright as it now appears, however. When the operation was first starting in 1960 it came close to failing. Less determined men might have given up. Following the first harvest, a Florida distributor ordered $8,000 in dried plants. But

A collection of dried Panama plant life transformed into an attractive table arrangement is held by Mrs. Gladys Burdick of the Curundu Flower Shop.

With the help of 10 men and women who harvest, dry, fumigate, and package the marketable foliage, the Stevenson brothers are working toward a half-million-dollar a year industry. It may be the largest export company of dried tropical plants in Central and South America.

Already the "product of Panama" label printed on the packages can be seen in nearly every State of the continental United States.

Airfreight

So far this year they have shipped to the United States approximately 250,000 wood roses and about 200,000 other plants. Everything is sent airfreight from Tocumen Airport to the nationwide distributor, Horticultural Sales in Fort Lauderdale, Fla.

Tropical Plant Products has grown from 10 to 50 acres since the farm started 10 years ago. Although it was a struggle for them in the early years, the Stevensons now feel there is a vast market for tropical dried plants, not only in the United States, but Europe, England, and Japan. They plan to increase the size of the farm to 200 acres, which will provide jobs for 50 persons.

before the shipment was paid for the wholesaler went bankrupt and the account was never settled. Except for the farm itself, and the energies and business sense of the Stevenson brothers, the company was just about out of business.

Slowly they brought it out of the doldrums. Stockholders who invested in the original venture are being repaid their original investment, plus interest. Davis, who takes care of the administrative side of the company, said the obligation to the stockholders will be totally repaid in another 2 or 3 years.

While Panama's weather provides an ideal growing season, it also creates something of a problem. Harvest time on the Stevenson farm is at the beginning of the dry season. But if the rainy season ends late, as it did this year, unseasonal storms damage the plants. Dry season rains in January destroyed 40 to 50 thousand wood roses. But everything considered, nature is generous to persons who till Isthmian soil.

The U.S. Department of Agriculture requires that before being shipped to the United States, all plants must be

(Please see p. 22)

With his homemade, plywood collection box
strapped to his back,
Jerónimo García snips seed pods from
the vine with his right hand and flings them accurately
over his shoulder into the box.

A closeup view of the seed
pod shows why it is called a wood rose.
It is actually the seed pod of the
Ipomoea Tuberosa vine which produces a bright yellow
flower during the latter part
of rainy season.

Just prior to fumigation
the plants are sorted and packaged.
Mrs. María de los Santos Molina,
who lives nearby,
earns extra money during
harvest season.

Approximately 100 dozen wood roses are in
this wire box about to be placed in a gas-heated drying room
by Ricardo Torres. Although the
plants are almost dry when picked, further drying is necessary
and assures better coloration.

The Wood Rose Is Always A Favorite

(Continued from p. 20)

fumigated to destroy unwanted and possibly dangerous insects. Fumigation is one of a series of processes carried out between the time a plant is picked and the time it is shipped to the airport.

Wood Roses

In the case of the popular wood roses, a team of harvesters moves through the rows of vines carefully selecting and cutting the flowers. They are then put into shallow boxes with wire bottoms and placed in a gas-heated drying room. Although the plants would dry naturally, the artificial method does a faster job and results in better color.

The plants spend 48 hours in the chamber and then are moved to the sorting table where each plant is inspected for color, size, and general quality. The best of the plants are then hand bagged (a dozen to each perforated plastic bag), stapled closed and moved to the fumigating room where menthol bromide gas kills the insects. After this necessary procedure, the plants are placed in cardboard cartons for trucking to the airport.

Braniff International and Pan American World Airways fly the packages to Florida. An average shipment consists of 50 cases which contain 4,000 dozen wood roses.

Besides the pleasant climate of Panama, there are other advantages for businesses in the Republic. Davis points out that the Isthmus has excellent accessibility to world markets; the investment climate is good because it is a dollar economy, and the business community is a progressive one. Also, there are certain guarantees for foreign businessmen; ability to move dollars in and out of the country without restrictions, and a liberal dividend tax.

On The Ground

The Stevenson farm does not produce all the items that Tropical Plant Products exports to the States. Some of the dried plants such as the white cecropia leaves are provided by suppliers who simply pick the leaves off the ground and take them to the farm. Other flora supplied in the same manner include sea oats, sea grape leaves, heliconia, and royal palm sprays.

Panama, like other tropical countries, has a wealth of items that can be dried and made into attractive arrangements for the home or office. Anybody can do it. All it takes is the right plant, a little imagination, and a vase.—**L.R.G.**

Surrounded by the lushness of Panama, David Stevenson, left, and his brother Sydney, inspect a new batch of wood roses before the plants are packaged and fumigated. Their efforts may eventually turn into a $500,000 a year industry.

Packaged in plastic and labeled, the finished product is ready to be flown to Florida for distribution. So far this year approximately 450,000 dried plants have been shipped out of Panama.

ANNIVERSARIES

(On the basis of total Federal Service)

ADMINISTRATIVE SERVICES DIVISION

Malcolm E. Smith
Time and Leave Clerk
Francis V. Lord
Cylinder Pressman

MARINE BUREAU

Elton H. Sealey
Marine Traffic Clerk
Herbert G. Forbes
Guard
Leighton F. Franklin
Seaman
Arthur C. Willocks
Machine Operator

TRANSPORTATION AND TERMINALS BUREAU

S. M. Scantlebury
Motor Vehicle Dispatcher
Albert W. McKinnon
Messenger
Albert A. Smith
Time and Leave Clerk
U. W. Wallace
Time and Leave Clerk (Typing)

SUPPLY AND COMMUNITY SERVICE BUREAU

Zilla M. Worthy
Marker and Sorter
Allan A. Faulkner
Leader Laborer (Cleaner)
William A. Woodcock
Meat Cutter

ENGINEERING AND CONSTRUCTION BUREAU

Julian S. Hearne
General Engineer (Dredging)
Ernest T. Wallace
Asphalt or Cement Worker
William A. Howard
Leader Painter

HEALTH BUREAU

Ernest A. Welch
Medical Aid (Sterile Supplies)

OFFICE OF THE GOVERNOR-PRESIDENT

William M. Whitman
Secretary, Panama Canal Company and Assistant to the Governor

MAGISTRATES' COURTS

Cleveland E. Stevens
Court Clerk (Typing)

ADMINISTRATIVE SERVICES DIVISION

Fred E. Wells
Supervisory Transportation Officer
Robert G. Hammetter
General Foreman-Printing Plant
Edna E. Newton
Bindery Worker
Phyra I. Decoster
Bindery Worker

OFFICE OF THE COMPTROLLER

Wilfred W. Jones
Accounting Technician
Carl M. Pajak
Staff Accountant
Donald J. Bowen
Supervisory Accountant

PERSONNEL BUREAU

Robert A. Stevens
Supervisory Position Classification Specialist

MARINE BUREAU

Carmelo Zúñiga
Line Handler
Ira B. Knight
Seaman
Florencio Ríos
Lead Foreman (Operations—Lock Wall)
Charles W. Rager
Lock Operator (Pipefitter)
Servio T. Rueda
Helper Lock Operator
Alfred E. Thompson
Air Compressor Plant Operator
John W. Urey
Lead Foreman Pipefitter
William W. Anderson
Painter
Alson T. Boyce
Painter
Joseph N. Gill
Laborer
Charles A. Barnes
Supply Clerk
Justo Navarro
Carpenter
Elwin S. Maitland
Line Handler (Deckhand)
E. S. Harrison
Motor Launch Operator
Sixto De la Cruz
Seaman
Earle H. Holder
Mate Trainee (Towboats)
Roosevelt Bryan
Line Handler (Deckhand)
Eric B. Phillips
Leader Line Handler (Deckhand, Boatswain)
Luis De León
Cement Finisher-Maintenance
George L. Curtis
Helper Lock Operator
Walter F. Jarvis
Lead Foreman, Lock Operations
Miguel Batista
Line Handler
George E. Phillips
Fiberglass Worker (Boats)
Grover R. Barnes
Leader Lock Operator—Iron Worker, Welder
Alfred E. Ferdinand
Leader Seaman
Carlos Romero
Seaman (Launch)
Ashton E. Crichlow
Launch Dispatcher
Henry Montgomery
Toolroom Attendant
José M. Castro
Line Handler
Chabel H. Moses
Painter
Julio Rodríguez
Boatman (Locks)
José del C. Pérez
Oiler
Anthony Williams
Painter
John Jackman
Supply Clerk
Henry I. Bennett
Helper Machinist (Marine)
Gilberto Myers
Motor Vehicle Dispatcher
Arnoldo J. Sinclair C.
Launch Dispatcher
Edward R. McDonald
Helper Lock Operator

TRANSPORTATION AND TERMINALS BUREAU

Adolphus L. Osborne
Truck Driver
Andrés Ross
Leader (Dock Stevedoring)
Samuel Barrios
Automotive Equipment Serviceman
Alfonso Henry
Stevedore
Marcus Aird
Cargo Operations Clerk
Joseph E. Frederick
Helper (General)
Basil E. Curtis
Helper (General)
Eric E. Glasgow
Clerk Checker
Jorge Duncan
Laborer (Cleaner)
Vivian Blandford B.
Motor Vehicle Dispatcher
Nicolás I. Caput
Chauffeur
Antoine Bruno
Truck Driver
Leonard D. Saunders
Train Baggageman
Willard O. Robinson
Helper Electrician
Arthur J. Edwards
Materials Handling Equipment Repairman
Joscelyn H. Evering
Clerk
Lee B. Hunnicutt
Supervisory Cargo Checker
Onofre Coronado
Liquid Fuels Wharfman
James Kennedy
Truck Driver (Heavy)
Calvin Best
Blocker and Bracer
Clarence A. Taylor
Parts and Equipment Cleaner
McDonald A. Evans
Stevedore
William R. Graham
Railroad Operations Officer
Wilson H. Waldron
Lead Foreman Automotive Mechanic
Carlos Segreda C.
Grounds Equipment Repairman

SUPPLY AND COMMUNITY SERVICE BUREAU

Gwendolyn Cumberbatch
Counterwoman
Ethel M. Harding
Counterwoman
Abelardo Reluz
Garbage Collector
Newton E. Skeet
General Foreman (Grounds)
Norman Davis
Leader Laborer (Cleaner)
James Jesse
Laborer (Cleaner)
William K. Mapp
Laborer (Cleaner)
Booker T. Alleyne
Laborer (Pest Control)
Harlington G. Davidson
Laborer (Heavy-Cold Storage)
Robert Davidson
Marker and Sorter
Luisa O. de Sánchez
Marker and Sorter
Remi O. Grimaux
Warehouseman
Pedro Beleño
Carpenter (Maintenance)
Cleveland G. Meikle
Supply Clerk
Lillian G. Holder
Sales Store Checker
James N. Miller
Commissary Store Department Manager
Irene V. McClean
Sales Store Checker
Rafaela Salas
Snack Bar Operator
Eric L. Wilson
Leader Cook
Manuel Morales P.
Gardener
Hilario Rojas
Grounds Maintenance Equipment Operator
José G. Santana
Field Tractor Operator
Edmund Reid
Laborer
Gerald S. Oakley
Laborer (Cleaner)
Randolph V. Perkins
Sales Store Clerk

(Please see p. 30)

CANAL COMMERCIAL TRAFFIC BY NATIONALITY OF VESSELS

Nationality	First 9 Months, Fiscal Year					
	1970		1969		1961-65	
	No. of transits	Tons of cargo	No. of transits	Tons of cargo	Avg. No. transits	Avg. tons of cargo
Belgian	98	351,821	87	111,277	34	129,660
British	1,195	10,125,298	1,074	8,730,616	962	6,205,633
Chilean	88	577,204	80	557,341	90	635,775
Chinese (Nat'l.)	106	812,457	93	649,100	58	416,564
Colombian	160	445,302	135	410,005	191	300,332
Cuban	49	453,665	32	317,487	2	5,369
Cypriot	49	431,090	26	228,380	----	-------
Danish	325	1,648,553	279	1,613,433	225	1,094,336
Ecuadorean	52	83,120	44	53,727	32	37,602
Finnish	49	322,928	32	191,640	17	71,349
French	178	660,097	183	789,779	103	551,340
German	813	3,548,878	864	3,286,373	837	2,516,154
Greek	424	5,398,801	391	4,401,580	470	4,571,535
Honduran	123	75,154	153	96,131	155	121,136
Israeli	68	349,243	72	483,444	49	191,206
Italian	212	1,106,371	197	1,270,506	141	828,450
Japanese	846	7,774,494	795	6,750,180	625	3,644,188
Liberian	1,174	19,070,291	1,190	18,238,702	692	6,781,206
Mexican	56	383,228	79	331,340	16	50,956
Netherlands	367	2,209,269	343	1,786,190	457	2,075,590
Norwegian	987	12,105,706	999	10,441,949	1,065	7,961,315
Panamanian	586	3,171,785	462	1,982,080	336	1,453,025
Peruvian	146	746,061	130	599,521	86	409,523
Philippine	87	555,194	69	359,124	51	220,593
South Korean	59	638,036	27	195,188	7	36,470
Soviet	91	646,559	70	502,118	16	122,837
Spanish	53	178,562	27	175,231	11	45,769
Swedish	352	2,467,103	371	2,484,246	275	1,608,182
United States	1,132	5,878,823	1,125	5,605,069	1,273	7,597,402
Yugoslavian	30	486,204	24	346,010	10	78,745
All Other	196	1,524,953	219	1,066,514	130	455,307
Total	10,151	84,226,250	9,672	74,054,281	8,416	50,217,549

MONTHLY COMMERCIAL TRAFFIC AND TOLLS

Vessels of 300 tons net or over—(Fiscal years)

Month	Transits			Gross tolls[1] (Thousands of dollars)		
	1970	1969	Avg. No. Transits 1961-65	1970	1969	Average Tolls 1961-65
July	1,137	1,122	960	7,787	7,089	4,929
August	1,186	1,109	949	8,136	7,362	4,920
September	1,133	1,115	908	7,870	7,473	4,697
October	1,089	1,138	946	7,771	7,471	4,838
November	1,060	1,103	922	7,401	7,279	4,748
December	1,155	1,119	946	8,059	7,571	4,955
January	1,088	958	903	7,503	6,715	4,635
February	1,080	[2]874	868	7,479	[2]5,774	4,506
March	1,223	[2]1,134	1,014	8,350	[2]7,608	5,325
April		[2]1,166	966		[2]7,506	5,067
May		1,200	999		8,109	5,232
June		1,108	954		7,466	5,013
Totals for fiscal year		[2]13,146	11,335		[2]87,423	58,865

[1] Before deduction of any operating expenses. [2] Revised.

TRAFFIC MOVEMENT OVER MAIN TRADE ROUTES

The following table shows the number of transits of large, commercial vessels (300 net tons or over) segregated into 8 main trade routes:

Trade routes	First 9 Months, Fiscal Year		
	1970	1969	Avg. No. Transits 1961-65
United States Intercoastal	280	270	330
East coast United States and South America	982	1,026	1,771
East coast United States and Central America	447	492	372
East coast United States and Far East	2,489	2,234	1,655
East coast United States/Canada and Australasia	312	298	241
Europe and West Coast of U.S./Canada	769	738	719
Europe and South America	959	969	908
Europe and Australasia	353	327	286
All other routes	3,560	3,318	2,135
Total traffic	10,151	9,672	8,417

Pilot Record Unit Aids Efficiency Of Marine Bureau

KEEPING TRACK of the Panama Canal's 185 pilots is a task assigned to the newest addition to the Marine Bureau—the Central Pilot Control Board Unit.

The unit was organized to streamline operations which were becoming increasingly complicated by paperwork and round-the-clock activities requiring a greater number of pilots.

For almost as long as the Canal has been in operation, pay and leave records, availability schedules, pilot qualifications, and other pieces of information all were being kept by scattered personnel in Cristobal and Balboa.

There was no central location or one man responsible for keeping work records and assignment schedules.

Pilots Assigned

Now, as in the past, pilots are assigned to ships according to their qualifications (as to the size of ship they are permitted to take through the Canal), their last assignment, whether or not they had been assigned harbor duty, their leave schedule, their home base (Cristobal or Balboa), and other considerations. What it all amounts to is a mountain of paperwork.

The Central Pilot Control Board Unit is comprised of seven men headed by Capt. Christian J. Gundersen, assistant port captain at Balboa. The unit keeps a 24-hour pilot availability schedule for each Canal pilot, his pay and leave records, and daily assignment. It began as an experiment last June and was put into full operation in January.

For the past 55 years, these tasks were handled by assistant port captains, timekeepers, and marine traffic controllers at the two Canal ports. There were actually two pilot units, one on the Atlantic side and the other in Balboa on the Pacific side. Each was responsible for assigning pilots for their respective area.

Overtime

Very often, under this two-unit system, when there was a large number of ships moving in one direction, one set of pilots was required to work overtime while the other group might have been working less than normal.

This situation resulted in a study of the pilot-control system.

The Marine Traffic Control (MTC) which was centralized in Balboa 5 years ago, provided the pattern. Up to that time it too was being handled like the pilot assignments—separately at Balboa and at Cristobal. Streamlining was needed to cope with the increasing workload.

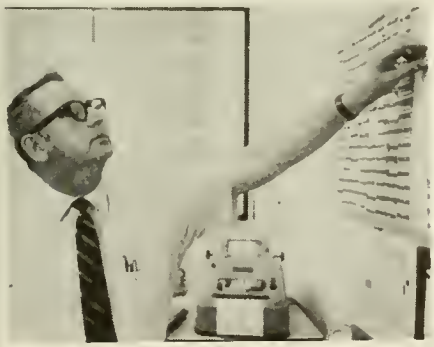
The Executive Planning Staff saw the success of the centralized MTC and recommended that pilot assignments and record keeping should also be centralized. Captain Gundersen was given the task of developing a workable system.

He devised several methods, and after a series of experiments, one was finally put into operation. It called for a large magnetic color coded tab board showing the name of each pilot, the size of vessel he was qualified to take through the Canal, his home base, and his availability on a given day.

Magnetic Tabs

The information can easily be updated by simply changing the magnetic tabs. Different color tabs denote the home base and pilot qualifications.

An alphabetical directory board shows the name of each pilot, his telephone number, home base, and qualifications. This board and the tab board are in clear view of clerks as they develop daily rotation papers that are sent to the MTC, which phones pilots and assigns them to the ships.



Capt. Gundersen
Checks pilot board

All pilot records—leave, pay, and any change in qualifications—are now kept by the Central Pilot Control Board Unit, which maintains a continuous and up-to-date record of all pilots' duty availability. The unit prepares, maintains, and administers all pilot schedules and records including annual and intermittent leave, special duty, regular non-work-day lists, and schedules of regular habor watches. *(Please see p. 26)*

PRINCIPAL COMMODITIES SHIPPED THROUGH THE CANAL

(All cargo figures in long tons)

Pacific to Atlantic

Commodity	First 9 Months, Fiscal Year		
	1970	1969	5-Yr. Avg. 1961-65
Ores, various	4,045,819	3,169,177	762,731
Boards and planks	2,429,332	2,663,054	N.A.
Iron and steel plates, sheets and coils	2,377,905	2,131,373	N.A.
Sugar	1,884,980	1,999,273	1,702,895
Petroleum and products	1,611,370	573,961	1,434,746
Fishmeal	1,089,001	1,412,494	N.A.
Metals, various	1,062,651	985,060	870,499
Food in refrigeration (excluding bananas)	985,497	1,006,916	659,362
Bananas	876,683	849,757	859,357
Pulpwood	867,325	909,899	376,192
Iron and steel manufactures, miscellaneous	862,202	802,108	N.A.
Petroleum coke	755,105	333,081	N.A.
Plywood and veneers	672,531	669,285	N.A.
Salt	485,102	247,803	N.A.
Canned food products	467,027	459,361	739,746
All others	9,294,318	8,535,000	15,289,130
Total	29,766,848	26,747,602	22,694,658

Atlantic to Pacific

Commodity	First 9 Months, Fiscal Year		
	1970	1969	5-Yr. Avg. 1961-65
Coal and coke	15,288,619	11,543,869	4,430,533
Petroleum and products	10,667,842	11,886,351	8,352,069
Corn	4,090,588	1,883,668	1,132,893
Phosphates	2,777,375	3,532,425	1,583,682
Metal, scrap	2,684,088	1,897,167	1,994,208
Soybeans	2,365,767	1,888,242	1,117,075
Ores, various	1,707,954	1,399,842	223,574
Sorghum	1,657,780	1,137,322	N.A.
Sugar	1,111,422	762,989	418,323
Metal, iron	968,881	1,064,541	146,018
Chemicals, unclassified	656,518	567,407	477,983
Rice	638,019	313,904	90,908
Paper and paper products	617,054	596,602	313,189
Fertilizers, unclassified	504,805	400,005	283,699
Autos, trucks, and accessories	495,349	427,063	243,972
All others	8,227,341	8,005,282	6,714,764
Total	54,459,402	47,306,679	27,522,890

CANAL TRANSITS – COMMERCIAL AND U.S. GOVERNMENT

	First 9 Months, Fiscal Year				
	1970			1969	Avg. No. Transits 1961-65
	Atlantic to Pacific	Pacific to Atlantic	Total	Total	Total
Commercial vessels:					
Oceangoing	5,221	4,930	10,151	[3]9,672	8,416
Small [1]	186	181	367	433	412
Total Commercial	5,407	5,111	10,518	10,105	8,828
U.S. Government vessels: [2]					
Oceangoing	419	434	853	1,046	185
Small [1]	30	35	65	92	121
Total commercial and U.S. Government	5,856	5,580	11,436	[3]11,243	9,134

[1] Vessels under 300 net tons or 500 displacement tons.
[2] Vessels on which tolls are credited. Prior to July 1, 1951, Government-operated ships transited free.
[3] Revised.

SHIPPING

(Continued from p. 25)

The unit is responsible for all functions pertaining to pilots' timekeeping. This centralization of time records reduces the possibility of errors in determining night differential, and other extra pay factors.

Captain Gundersen is also the administration's liaison with the elected officials of the Panama Canal Pilot Association with regard to agreements on the interpretation and application of the Pilots Work Rules.

Centralizing the pilot record and assignment system "was a tremendous improvement," said Rufus C. O'Neal, chief marine traffic controller. "There is better utilization of manpower, uniformity in administration of the pilot force, and better equalization of pilot overtime."

Accurate Records

Other benefits, said Captain Gundersen, include removing clerical chores from assistant port captains, keeping pilot time records in a single office, and keeping more accurate pilot rotation records.

He also noted that this is the first time that anyone connected with pilot assignments and pilot schedules has had complete information readily available for the status of any of the 185 pilots.

Working with Captain Gundersen are: Kenneth Gibbs, supervisor; Ashby Smith, alternate supervisor; Claude E. Burgess, timekeeper; and Hubert Weeks, Ernesto Evering, Arthur Barter, and Ricardo Roberts, watch standing clerks.

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Container Ships Ordered

FOUR 41,000-ton container ships will begin using the Panama Canal in 1972 in the United Kingdom to New Zealand trade, according to an announcement made recently by the chairman of the New Zealand Conference.

The vessels, which will be the world's largest refrigerated ships, have been ordered from British yards for delivery in 1972 and 1973. They will carry approximately 1,420 containers, 1,160 insulated and 260 general cargo, at a speed of 23 knots.

Two were ordered by Overseas Containers Ltd. of which the New Zealand Shipping Company and the Shaw Savill Lines are members, and two by Blue Star Line and Port Line, members of Associated Container Transportation Ltd.

The ships, plus their containers, will cost approximately $132 million. They will operate a 14-day service from Tilbury and Southampton to Auckland and Wellington and will charter 80 percent of containerizable exports from Britain and nearly 50 percent of New Zealand export cargo to the United Kingdom.

Speedy Swedes

THE SWEDISH flag Johnson Line, a regular customer of the Panama Canal, has added three new speedy containerships to its Europe to the United States and north Pacific run. They are the *Axel Johnson*, *Annie Johnson*, and *Margaret Johnson*. Each vessel cruises at 23 knots with a full load of 610 containers and 200,000 cubic feet of palletized general cargo. Each ship has two high efficiency gantry cranes, seven holds with a million cubic foot capacity, and a sophisticated remote control system. The enginerooms on the three vessels can operate unmanned for 16 out of every 24 hours.

The new ships entered service last year when the *Axel Johnson* made her maiden voyage through the Canal to the U.S. west coast and Vanconver. The *Annie Johnson* arrived at the Canal a few months later and broke the company's speed record between London and the U.S. west coast in 14 days and 19 hours. *Margaret Johnson* was launched last fall and was to make her initial trip through the Canal last month.

Panama Agencies is the local agent for the Johnson Line.

Liners Being Sold

TWO WELL-KNOWN passenger ships which have visited the Panama Canal on various occasions under the flags of their previous owners may be coming here soon as cruise ships operated by

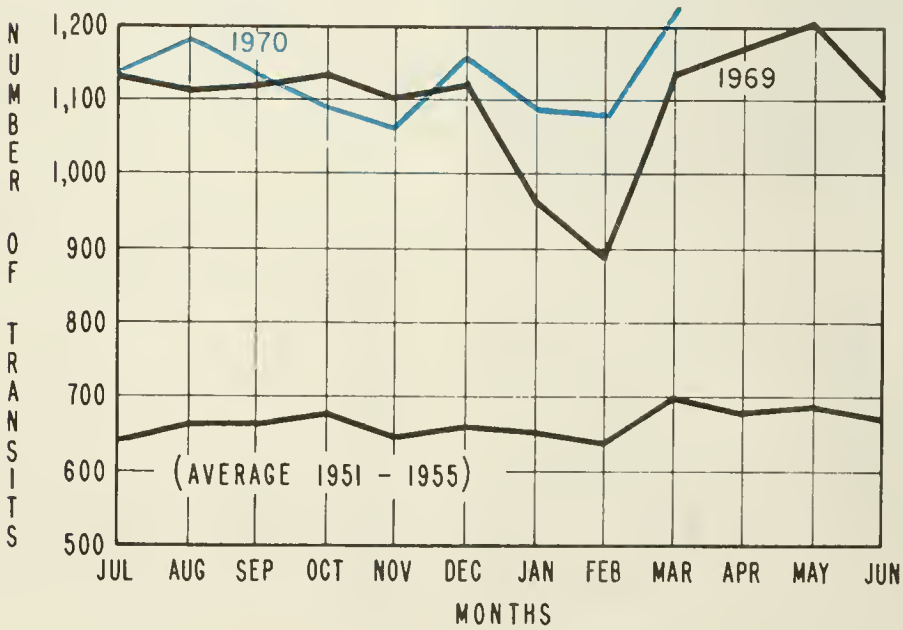
(Please see p. 30)

PANAMA CANAL TRAFFIC
STATISTICS FOR FIRST 9 MONTHS OF FISCAL YEAR 1970

	1970	1969
TRANSITS (Oceangoing Vessels)		
Commercial	10,151	9,672
U.S. Government	853	1,046
Free	81	46
Total	11,085	10,764
TOLLS*		
Commercial	$70,355,589	$64,342,447
U.S. Government	4,936,460	6,442,040
Total	$75,292,049	$70,784,487
CARGO**		
Commercial	84,226,250	74,054,281
U.S. Government	3,365,077	5,660,210
Free	173,949	74,871
Total	87,765,276	79,789,362

* Includes tolls on all vessels, oceangoing and small.

** Cargo figures are in long tons.



Headquarters of the Panama Canal

"SUCH A VARIED collection of functions has seldom before been assembled under one roof, and the building is probably unique and not liable to be duplicated until some undertaking as great in magnitude as the Canal is to be consummated."

That statement, somewhat formal as was the style of the times, capped the description printed in THE CANAL RECORD on December 30, 1914, of the new Administration Building in Balboa Heights.

And although the "varied collection of functions" still remains, the edifice that serves as headquarters for the Panama Canal organization "was planned without any definite knowledge of what offices were to occupy it, how much space they would require, or how they were to be correlated," THE CANAL RECORD stated.

Under One Roof

During the construction days various offices and administrative units were spread throughout the area. As the Canal neared completion it became obvious that a structure was needed to concentrate the offices of the several departments under one roof for the sake of efficiency and economy, and for the convenience of the general public having business with the Canal.

Actual work of excavating, filling, and leveling of the site was begun in March 1913 by the Department of Construction and Engineering. The United States Steel Products Co. was able to start erecting the steel skeleton on June 18, 1913. The first employees occupied the "E" shaped building in November and December 1914, while the noise and hubbub of final construction was still going on around them. By June 1915, there were 424 employees, 39 of them women, working in the Administration Building.

Architecturally, the building is 15th century Italian renaissance. Except for landscaping and the addition of parking areas, the exterior of the Administration Building has changed little since 1915. Changes, however, have come to the interior. Offices have been shuffled, reshuffled, extended, cut up, rearranged, carpeted, curtained, and cooled.

Gone are the ladies' reading rooms, pool tables for men, and a small room on the landing between the first and second floors where candy and cigars were sold.

Cold Beer Served

Gone also is the cold beer which was available in the restaurant in the basement. A library once occupied the porch at the front of the building. It was moved to the Civil Affairs Building in 1949.

Many of the porches, which were necessary to protect the offices from the direct rays of the sun and which also served as corridors for public communication to and between the various offices, were covered in 1942. The Graphic Branch, originally in the attic, was moved to the basement in 1954.

Canal organization functions which have remained at their original places include the Engineering and Construction Bureau, the main vault in the basement, the telephone exchange, and the seismograph. The Balboa Heights Post Office, whose main purpose was to expedite official Canal mail, has always been on the first floor just off the rotunda.

(Please turn to p. 28)

Looking west from Ancon Hill on March 14, 1914, one could see the almost completed Administration Building. In 1955 the American Society of Civil Engineers chose the "E" shaped structure as one of the seven modern civil engineering wonders of the United States.

Major changes to the interior were made about 12 years ago. A number of improvements were undertaken at a cost of more than $1 million. These included an air-conditioning system, fluorescent lighting, suspended acoustical ceilings, conversion of a suite of rooms adjacent to the Governor's Office to be used as the Board Room, a new self-service elevator was installed, and glass doors replaced wooden doors at all outside exits.

Van Ingen Murals Restored

A bronze bust of former President Theodore Roosevelt was unveiled in the rotunda during the Roosevelt Centennial celebrated on the Isthmus in November 1958. A bust of Ferdinand DeLesseps had been placed in a niche of the rotunda in 1955. The beautiful Van Ingen murals circling the upper walls of the rotunda, which show the monumental construction of the Panama Canal, were restored in 1960.

More recent innovations in the Administration Building are new windows and doors, rehabilitation of restrooms, carpeting and general refinement of offices.

Latest additions to the interior of the Administration Building are epoxy reproductions of the seal of the Canal Zone Government and the seal of the Panama Canal Company which embellish the two columns facing the east entrance.

Extends To Washington

Approximately 730 persons, including some 230 women, are now employed in the Administration Building.

Headquarters for the organization which employs close to 16,000 persons, the building is the hub of an organization extending to Washington, D.C. where the Office of the Secretary for the Panama Canal Company is located.

The photographs on these pages show some of the day-to-day activities that take place in the Panama Canal's Administration Building. —F.H.

Canal Zone Governor W. P. Leber, right, discusses one of many administrative matters that arise every day. At left is Lt. Governor R. S. Hartline with Paul M. Runnestrand, executive secretary.

The Engineering and Construction Bureau is responsible for all design, construction, inspection, and maintenance of buildings. Col. Charles R. Clark, Bureau director, right, uses a model of the Panama Canal to explain how a ship transits the waterway. Listening are Julieta Arosemena, stenographer, and Richard Lopp, budget and projects coordinator.

With health directors from the past seemingly looking on, Col. H. H. Ziperman, present director of the Health Bureau, center, confers with two colleagues, Col. Robert W. Green, director of Gorgas Hospital, right, and A. B. Carr, assistant to the health director.

A Myriad of Functions

ABOVE: The purse strings of the Canal organization are held by Comptroller Philip L. Steers, Jr., left, talking over a budget matter with Arthur J. O'Leary, deputy comptroller. BELOW: Telephone operators Joan Chevalier, foreground, and Mariela Vieto are at the switchboard in the Communications Branch. Five operators handle from 500 to 750 calls a day.

The Marine Bureau's primary responsibility is to put ships through the Canal. Capt. Alvin L. Gallin, USN, bureau director, left, talks over a project with Walter A. Dryja, assistant director.

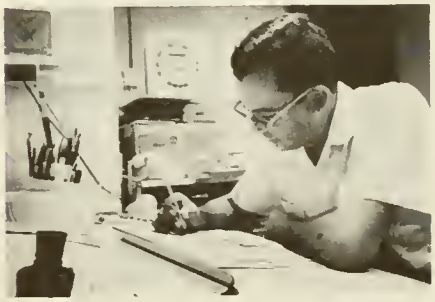
Programers in the Data Processing Division discuss a systems configuration. From left are: Richard Gayer, Norita Scott, and Edgar McArthur.

Legal counsel and litigation are integral parts of the Canal organization. From left, attorneys John L. Haines, Jr., Stephen A. Berniard, Jr., and Earl R. McMillin discuss a point of law as they prepare a brief.

Maintenance of the teletype circuits and microwave equipment is continuous. Wade Huffman, Jr., leader central office repairman, checks the circuits. More than 185,000 calls a day go through the exchange.

Hugh A. Norris, Executive Planning Staff senior economist, seated, discusses shipping statistics with Iris Peralta, statistical clerk, and Donald Schmidt, economist.

The Balboa Heights Post Office is always busy. Checking parcels are, from left: Conrad Blades, Neville Fraim, James Bedsworth (standing), and Edmund Johnson.



The Graphic Branch provides a wide range of services. Carlos Méndez, prepares artwork for photographic reproduction.

(Continued from p. 23)

Constantia T. Lawson
Supervisory Sales Store Clerk
George C. Clark
Guard
Claude L. Goodridge
Laborer (Heavy-Cold Storage)
Samuel U. Johnson
Guard
Santiago Griffin
Sales Store Clerk
Marcelino Martínez
Laborer (Heavy)
Everard S. Levexier
Lead Foreman (Materials Handling)
Alfred C. Drakes
Leader Stockman
Wilbert H. Kellman
Assistant Baker
Manuel E. Hernández
Truck Driver
Sadie D. Belle
Office Machine Operator
Clifford W. Edwards
Washman
Clarence Levy
Marker and Sorter
Charles Hogan
Laundry Worker (Heavy)
Jestina Trusty
Sales Store Checker
Alma V. Larrier
Supply Clerk
Ruth D. Jaminson
Pantrywoman
Egbert E. Davis
Supply Clerk
Ignacio López G.
Laborer
Rafael J. Femenías
Truck Driver
C. M. Dandrade
Sales Store Clerk
Inez C. Howell
Sales Store Clerk
Fabián O. Brown
Assistant Meat Cutter

ENGINEERING AND CONSTRUCTION BUREAU

Félix G. López
Oiler (Floating Plant)
Pedro A. Gordón
Boatman
Epifanio Salazar
Boatman
Aurelio Pozo
Paver
John Finlason
Chief Engineer, Towboat
Rupert C. Fennell
Motor Launch Engineman
Jorge A. Shuffler
Leader (Deck Operations, Dredge)
Frederick Burns
Motor Launch Operator
José Z. Moreno
Boatman
Gilbert C. Foster
Leader (Quarry Operations)
Hilton F. Hughes
Chief, Power Plant (Hydro)
Gerald J. Fox
Lead Foreman Machinist (Maintenance)
Harvey W. Sauter
Lead Foreman (Hospital Maintenance)
Eric T. Smoll
Wharfbuilder
Charles A. Sealey
Helper Sheetmetal Worker
Nicolás Estrada R.
Surveying Aide
James H. Holder
Guard
Luciano Del Cid S.
Laborer (Heavy)
Wilfred G. James
Paver
José Del Cid M.
Laborer (Heavy)
Mildmay C. Lamotte
Clerk, Work Order
Jorge Pierre
Clerk
Víctor E. Griffith
Laborer (Heavy)
Austin G. Mapp
Upholsterer
Rafael Molinar C.
Maintenanceman, Distribution Systems
Raul Leincb
Electrician, Lineman
Reginald A. Mason
Helper Cable Splicer
Carlos A. Valderrama
Seaman
Cristóbal Murillo
Oiler, Floating Plant
Miguel A. García
Oiler, Floating Plant
Cresencio Rivera
Seaman
Cándido Meléndez
Lead Foreman, Debris Control
Juan A. Ibarra
Oiler, Floating Plant
Mauricio C. Poveda
Sandblaster
Owen Carlyle
Leader—Deck Operations, Dredge
Isaac Bermúdez T.
Motor Launch Operator—Small
Frederick M. Palmer
Laborer (Cleaner)
Félix Ramos
Laborer (Heavy)
Walter R. Weeks
Supply Clerk
Ernest C. Taylor
Truck Driver
Orlando P. Lashley
Helper Electrician
Ovidio Cáceres
Oiler (Floating Plant)
Euribiades Ramos
Sandblaster
Mike N. Bent
Motor Launch Operator
Carlos F. Joseph
Motor Launch Operator
Frederick A. Watson
Carpenter
Eugenio Ruiz
Maintenanceman
Robert F. Dunn
Operator, Dredge
Alfred A. Reid
Laundry-Equipment Repairman
Luis Cuenlas
Cement Finisher
Pedro Osses
Water Tender (Floating Plant)
Degaska Pryme
Helper Machinist (Maintenance)
Mariano García
Cement Finisher
Ferdinand M. Graham
Wharfbuilder
James S. Daniel
Wharfbuilder

CIVIL AFFAIRS BUREAU

Hoaglan A. Maynard
Maintenanceman
John F. Rice
Fire Sergeant
Samuel R. Prince
Fire Fighter
Richard J. Salvato
Customs Inspector

HEALTH BUREAU

Guillermo Herman
Diet Cook
Secundino Morán
Exterminator
Stanford W. Campbell
Leader Cook
Roberto A. Torres Q.
Laborer (Heavy-Pest Control)
Leslie A. Panther
Nursing Assistant (Medicine and Surgery)
Granville Brown
Nursing Assistant (Medicine and Surgery)
Proscopio Londoño
Exterminator
F. Villalobos
Hospital Attendant
Clara Z. Saarinen
Supervisory Clinical Nurse
I. Robert Berger
Chief, Out Patient Service, Gorgas Hospital
Muriel Levene
Nursing Assistant
Roy A. Watson
Pharmacy Assistant
Fitz G. Bowen
Nursing Assistant (Medicine and Surgery)
Thomas A. Barrett
Medical Aid (Ambulances)

(Continued from p. 26)

the Greek Chandris Lines. They are the *President Roosevelt* of the American President Lines, which recently completed a round-the-world cruise, and the American Export Isbrandtsen Line's *Constitution*, which has been laid up in Jacksonville for more than a year.

A report in the MARINE DIGEST said that Chandris will pay $8 million for the *Constitution* and $1.8 million for the *President Roosevelt*. The company would use the *Constitution* on round-the-world passenger service and the *President Roosevelt* for cruises. Chandris has been operating with many other liners including the former U.S. flagship SS *American* now sailing through the Canal as the *Australis;* the *Elinis*, formerly the Matson Line *Lurline*, and the *Queen Frederica*, formerly the *Malolo*. This last ship is still going strong despite the fact that she was built in 1928. Other U.S. passenger liners laid up on the U.S. east coast at present are the *Atlantic*, the *United States*, the *Argentina*, the *Brazil*, and the *Independence*.

Stock Exchange Cruises

DOCTORS GO on cruises, the bridge players join ranks and travel to the south seas, and the idle rich go around the world. Added to this list of special travelers are cruises for stock investors.

The Prudential Grace Line's *Santa Magdalena*, which transits the Canal on a regular schedule to the west coast of South America, has joined the "Wall Street Navy" for the first time. She and her luxury sister ship, the *Santa Rosa*, sailed on Investors' Special Cruises with her passengers enrolled in investment seminars provided for them by Oppenheimer and Company, members of the New York Exchange.

Apparently so successful are these investors' cruises that Merrill Lynch, Pierce, Fenner & Smith completed its 3d Annual Investors' Cruise last month aboard the West German-flag vessel, the TS *Hamburg*. The 13-day "relax and learn" tour sailed from Port Everglades and visited St. Thomas, Martinique, Trinidad, Granada, Venezuela, Curacao, Jamaica, and Haiti.

CANAL HISTORY

The H.M.S. "Renown" steams into Colon Bay. Aboard the cruiser is the Prince of Wales.

50 Years Ago

THE BRITISH cruiser *Renown*, carrying the Prince of Wales (now the Duke of Windsor) and his staff, arrived at Cristobal in the morning of March 30, 1920, and proceeded through the Canal to Balboa. According to the PANAMA CANAL RECORD, the President of Panama, the Governor of the Canal Zone, and other officials boarded the *Renown* at Gatun Locks and made the passage as far as Pedro Miguel. The ship was delayed about 3 hours in Gaillard Cut while the dredges cleared the channel of a slide which had occurred March 20. She arrived in Balboa at 8:30 p.m. having been 13½ hours in transit. The RECORD said the *Renown* was the largest ship in length and displacement to have transited the Canal at that time. She was 795 feet long and had a displacement of 33,379 tons.

The Prince of Wales was entertained during the evening of his arrival at a dinner and reception, followed by dancing, given by the British Minister to Panama at the Tivoli Hotel. The next day he was the guest of honor at a banquet and ball given by the President of Panama at the Union Club. The *Renown* was on its way to New Zealand and Australia via San Diego and Honolulu.

° ° °

The Panama Canal salvaged two freighters in March 1920. The steamship *Olockson* was towed in from sea and was sunk in the outer harbor at Balboa to extinguish a fire in her cargo of gasoline. The steamship *Marne* sank in Cristobal harbor, also with fire in her cargo of gasoline. Both were refloated and repairs made in the Panama Canal shops.

25 Years Ago

PANAMA CANAL employees continued to carry heavy workloads at both Cristobal and Balboa early in 1945 due to the sharp increase in Canal traffic which was up approximately 73 percent above the previous fiscal year. The limited docking facilities at Balboa, used as a repair base for a large fleet of tankers carrying war cargoes to the Pacific, necessitated the berthing of vessels three and four abreast at the piers and doubling up at the moorings.

The system of convoys in effect up to the end of hostilities in Europe taxed personnel and equipment at Cristobal to the limit in providing quick servicing. Wartime precautions for safeguarding the Canal and vessels in transit continued throughout the year although the war was coming to an end in Europe.

° ° °

President Franklin D. Roosevelt died in Hot Springs, Ga., April 12, 1945. At the end of April, as allied troops marched into Berlin, there were reports of the deaths of Mussolini in Italy and Hitler in Germany.

10 Years Ago

THE INCREASE in the size of ships using the Canal was reflected in Panama Canal shipping statistics issued in February 1960. With the exception of ship traffic, all Canal records were broken during the second quarter of fiscal year 1960. The amount of cargo carried through the Canal, the size of the transiting ships, and the tolls paid to the Panama Canal during that period all reached the highest figures in Canal history. This was attributed to the increase in the size of ships during the 3-month period. Among the customers were such superships as the *San Juan Merchant* and the Sinclair Company's *Petrolore*.

° ° °

The Japanese firm of Mitsubishi Shoji Kaisha Ltd. made the apparent low bid on a contract to furnish new towing locomotives for the Panama Canal. The bids were opened February 22, 1960. They called for 6 test locomotives, 33 additional locomotives, and three locomotive cranes. The Japanese firm entered a base bid of $3,829,900.

One Year Ago

THE LINER *Fairsea* was towed back to Balboa last February following a fire in the engineroom. The ship, en route from Australia to England with more than 900 passengers, was towed to Balboa by the tug *Gulf Raider* from a position nearly 900 miles southwest of Balboa.

° ° °

Monday, March 31, 1969, was set aside as a national day of mourning to mark the death of former President Dwight D. Eisenhower who died March 28 in Washington, D.C. As a mark of respect to his memory, Governor Leber ordered that all flags in the Canal Zone remain at half-staff for 30 days.

Date Due

Due	Returned	Due	Returned
JAN 2 1 1991	JAN 3 0 1995		
AUG 2 6 1991	AUG 0 2 1991		

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